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## Original Articles.

### LAMINECTOMY.

A FURTHER CONTRIBUTION.*


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Five years ago, at the Columbus session of this Association, I reported 18 cases of laminectomy for various conditions. To these I can add twelve more operations, including two sections of the posterior cervical roots, five acute crushes, myeloma of the spine, a fracture of the odontoid process, etc. There is very little that is new that I can offer to-day, but there are, however, one or two suggestions that have come to me in studying my cases that I believe point to the possibility of the existence of certain clinical phenomena seen at operations, that have not been and probably can not be demonstrated in the laboratory nor on the cadaver. These observations, if accurately made, may help to settle the question of operative benefit *per se*, that has been so bitterly fought on the one side by the neurologist and on the other side by the surgeon. I still believe that a simple technic, as emphasized in my first paper, has much to do with the comparative harmlessness of the operation.

#### FRACTURE-DISLOCATIONS.

If we collect the various scattered cases that have been reported within the last few years, favorable results following operation come more and more into evidence. It is useless at this time to go into a discussion of the question as to the possibility of equally good results in corresponding cases treated conservatively. The partisans on both sides are still too unyielding in their views. Being a partisan on the side of interference, I merely wish to present, as fairly as I can, the question as it appears to me personally. Fractures in the lower dorsal and in the lumbar regions are especially open to surgical interference, because of the relative harmlessness of laminectomy and because there is no valid reason for not subjecting the elements of the cauda equina to the same operative relief as in the case of any peripheral nerve. In the cervical fractures, however, there is much greater risk to life, whether operation is done or not. In watching quite a considerable number of injuries at this level, in the last few years, not subject to operation, I have been impressed with the fact that they die a day or so earlier and that they suffer no less than similar patients who have had a laminectomy. In several instances it has been possible to watch the progress of two patients—one operated on, the other not—as nearly similar in injury, age and physical conditions as is possible, using one as a control experiment, as it were. This impression has not a scientific basis; it is merely the general impression of a partisan observing the cases in hopes of being convinced that he advocates interference unnecessarily.

In studying the cases of cervical and high dorsal injuries treated without operation at the Boston City Hospital within the last ten years, I found that, of 30 patients, only one lived and partially regained his functions; 24 died within eight days of injury. The remainder, not including the one recovery, lived from three weeks to five months. In that same period I have seen, at the same hospital, at least three practically complete recoveries where a laminectomy was done. I have included the high dorsal injuries with the cervical because clinically the progress appears to be exactly the same. When we get below the mid-dorsal region, however, the story is a far different one.

Lloyd, in 1901, and various authors since that time, have reported recoveries after operation where the indications pointed to complete crushing of the upper cord. In addition, I have knowledge of a few more in the practice of my colleagues that help to confirm my views that, if the patient otherwise is able to undergo operation, it is better in the long run to offer him that chance; but the surgeon and the patient should realize all the time that at the very best the outlook is extremely poor.

Lloyd places great stress on withholding interference where shock is an element of danger, and I emphatically believe he is right. Some of these cases, as soon as they react from shock, show improvement in their cord symptoms, and should be let alone; but with a halt in the progress or a retrogression, operation should be done at once. His dictum that patients with a complete obstruction of the cord should be let alone ought to be modified, because these symptoms are occasionally misleading. This is shown in the recent report of two cases by Mixter and Chase. In one "there were present all of the clinical symptoms on which authorities had previously based their opinion that operation was contraindicated because it suggested total transverse lesion with a crush of the cord beyond repair." Nevertheless, there was marked and steady improvement following operation for eleven months, when death from septic nephritis took place.

A most interesting series of sections of the cord showed that "normal sensory and motor axons exist at the seat of the lesion, though their functions were interrupted at the time of injury, which suggested total destruction of the cord." Their second case, in a similar way, exhibited all the symptoms of complete transverse crush, yet he recovered sufficiently to return

* Read at the Fifty-fifth Annual Session of the American Medical Association, in the Section on Surgery and Anatomy, and approved for publication by the Executive Committee: Drs. DeForest Willard, Charles A. Powers and J. E. Moore.

to his business. Walton, in 1902, stated that "though we may value the classification of Kocher, Bastian, Thorburn and others, the terms complete and incomplete lesions should not imply that the symptoms of the former are necessarily incapable of amelioration." All of my patients with acute crush of the cervical cord have died, whether operated on or not, but the recovery that followed operation in two of my chronic cases indicates that there is something effected by removal of pressure not produced by the bony parts, by which the functions of the cord are restored; and it is not wild reasoning to conclude that if laminectomy can accomplish so much good after prolonged pressure, whatever its nature may be, it may accomplish as much good, relatively, when done within the first few days after injury.

In the first of these cases the local cervical symptoms having persisted for a year in spite of conservative treatment, disappeared gradually after laminectomy. The second case, under hospital treatment for nine weeks, for paralysis from the arms downward, without any benefit, steadily improved after operation until he is now practically well. All that was found in this case was a collection of fluid under a distinct arachnoid membrane. A similar condition was found in a case of syringomyelia reported in my first paper, and yet the removal of this insignificant pressure produced marked amelioration in the pressure symptoms. If to these we add the total disappearance of a paraplegia following the removal of myeloma insignificant in its bulk, soft, not penetrating the dura, I am inclined to think that there is a something that produces grave paralysis that is demonstrated clinically, appears totally inadequate, and for which we have no corresponding experimental nor postmortem explanation.

My two cases of section of the posterior cervical roots for severe brachial neuritis, both followed slowly by a Brown-Séquard paralysis, have taught me that in future the operation would be better performed in two stages. At the first sitting all the work down to exposing the dura could be done. A few days later, when the danger of even slight oozing would be over, the dura could be opened in a dry field, the roots divided and ligated if necessary and the dura closed. In cervical laminectomies there is always more hemorrhage than at lower levels and certain types of oozing are impossible to control without prolonged packing. The consequences of that oozing or the adhesions of the pia consequent on packing is later paralysis, which may or may not disappear.

These few meager conclusions are all that I feel justified at present in deducing from my own observation. More experimental work is demanded in this line of cases, but what I believe is equally important is that a corresponding amount of work in clinical observation is necessary, no matter how discouraging and hopeless it is by its very nature.

CASES OF ACUTE FRACTURE-DISLOCATIONS.

CASE 1.—Man, aged 36, was seen at the Somerville Hospital in consultation with Dr. Buffum and Dr. J. J. Thomas, in May, 1902.

*History.*—Two days before I saw him he had been struck in the head by a bale of leather, bending it acutely forward. He was not rendered unconscious, but suffered pain in the neck. At first he had fair motion in the legs and was able to control his bladder. The hand grasp was fair and the knee jerks were present. The day following he was obliged to be catheterized and the motion of the legs diminished. He suffered great pain on motion of the head, in his neck and between the scapulæ.

*Examination.*—There was flexion and extension of the wrist and fingers, extension of the forearm and partial flexion of the thigh. Respiration was diaphragmatic. Knee jerks were normal. No ankle clonus. Babinski reflex of both sides. Pain and touch sensations were slightly diminished up to the third rib and along the ulnar side of the hand and forearm. There was no zone of hyperesthesia. The neck was slightly tender over the lower cervical vertebræ, but there was no abnormal bony prominence. Diagnosis of probable temporary dislocation of the cervical and the dorsal spine.

*Operation and Result.*—At operation, under ether, the seventh, sixth, and part of the fifth cervical laminæ were removed. The dura was tense, not pulsating, translucent and thin. It was not opened. There appeared to be no local bony compression and the wound was closed, with temporary drain. On the following day his temperature rose and there was slight delirium, from which he recovered, and the mental condition became normal. No improvement in his physical condition followed, however, and he died some weeks later after progressive wasting from bedsores.

CASE 2.—Woman, aged 18, was aroused by fire in her house, jumped from the window, falling three stories, and was brought to the Boston City Hospital at once. At entrance she was unconscious and in profound shock, with a pulse of 180.

*Examination.*—There were scalp wounds, but no fracture of the skull could be determined. The abdomen was tympanitic and lax, and sensation as tested by a pin was apparently normal throughout. Under stimulation the patient slowly regained consciousness and about twenty-four hours after injury there was found complete paralysis of both legs and abdomen, with absence of sensation in the right leg and diminished sensation in the left thigh, increasing to absence of sensation below the knee. Sensation was practically absent on the abdomen and back up to a line at the level of the xiphoid cartilage, above which the sensation and motion were normal. Urine was passed involuntarily. Deep and superficial reflexes of the legs and abdomen absent. No ankle clonus. Complete loss of pain and temperature was also found.

*Operation.*—Under ether a laminectomy was done, the fifth dorsal spine being found loose and the fifth lamina on the right driven forward against the peridural fat. The fourth to the seventh laminæ, inclusive, were removed. The peridural fat was found infiltrated with blood, bulging slightly and containing a few clots; and though there was a persistent hemorrhage from some hidden vessel in the peridural tissue, it did not seem to be sufficient to account for the cord lesion. The dura was opened and an excessive quantity of clear serum escaped. No pressure elsewhere on the cord could be found. The peridural space was packed with gauze to control hemorrhage and the wound closed, allowing for temporary wicks. The patient stood the operation without shock.

*Result.*—No improvement in the paralysis followed for about a week. Then she developed beginning sensation in the lower extremities. The temperature was irregular all this time, varying from normal to 103; the pulse remained persistently at about 120. Two weeks after operation she complained of pain in the right side and a slight pleurisy was found. The wound healed kindly, but a bedsore, in the lower lumbar region, developed and increased gradually in size. A month after operation vomiting began, the bedsores increased, cystitis developed, and two and a half months after operation she died, without any improvement in her condition.

CASE 3.—Man, aged 44, fell about ten feet, striking his head and shoulder on the pavement, and was paralyzed in his lower extremities at once.

*Examination.*—He was taken to the Boston City Hospital relief station and anesthesia below the level of the nipples was found, with knee jerks present on both sides. Ankle clonus and plantar reflexes were absent. The abdomen was distended and tympanitic. A day later he was transferred to the main hospital. The knee jerks had disappeared, and paralysis of the sphincters came on. At first the temperature was elevated. At the end of two weeks his condition remained the

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same as regards his anesthesia and paralysis, but he was steadily losing ground and operation was advised.

*Operation.*—A laminectomy was done under ether and the sixth and seventh cervical laminæ were removed. In the muscles were evidences of old hemorrhage and laceration. No fracture was found in the spine. The dura was opened and a small amount of fluid escaped. Pushing up against the dura was a firm arachnoidal membrane, beneath which there was a large amount of clear fluid. This was opened and drained. The cord itself appeared normal. The wound was closed with a temporary rubber tissue drain. There was practically no shock. The temperature rose on the afternoon after the operation, but rapidly fell to normal, and there was considerable escape of fluid from the wound.

*Result.*—He developed the ability to flex and extend the forearms slightly, which before operation were completely paralyzed, but had no control of the hands. A beginning bedsore developed at the base of the spine about three weeks after operation. The operation wound healed by primary union, but the bedsores steadily increased, and his general condition grew worse. He developed incontinence of urine and feces, mild delirium supervened, and about five weeks after operation he died.

CASE 4.—Man, aged 22, fell from a team, striking on the top of his head, and broke his neck.

*Examination.*—He was brought to the Boston City Hospital with total paralysis of the upper and lower extremities and anesthesia below the second rib. Reflexes were absent. In front of the neck, on deep pressure, a projection of the displaced body of a vertebra could be felt. The head could be rotated and was not held in the position of a simple dislocation. He was conscious.

*Operation.*—Under ether a laminectomy was performed. A wide space was found between the fifth and sixth cervical laminæ, admitting the finger easily to the dura. The fifth lamina was removed; the fourth lamina, found to be pressing on the cord posteriorly, was removed also. Above or below this no compression could be determined by exploration. An attempt to reduce the dislocation of the vertebral body was made, but was unsuccessful, the deformity probably being due to a crush as well as a dislocation. There was no extra-dural bleeding and there appeared to be no indications for opening the dura. The wound was closed, allowing for a capillary drain. There was no shock.

*Result.*—A few hours afterward the patient, who had been comfortable, was suddenly seized with pains, the head was drawn back, and he became unable to swallow. The pulse rose to about 130, but gradually grew weaker and slower, although the temperature rose to 107 degrees. He became unconscious and died about twelve hours after operation.

CASE 5.—Man, aged 33, entered the Carney Hospital in November, 1903, after falling downstairs, striking the side of his head and neck.

*Examination.*—He was unconscious for a few moments and was instantly paralyzed in his arms and legs. He vomited a few times and required the catheter for the first few days. There was flaccid paralysis of both upper extremities and paresis of both lower extremities. Dr. Bullard examined him and found the right pupil larger than the left, sensation stronger on the outer and dorsal surface of the arm and forearm than along the inner surface. On the right forearm the posterior surface seemed duller than the anterior; on the left, sensation was essentially the same. On the top of the shoulders sensation was stronger. All sensation, however, seemed diminished, but his answers were not fully reliable. Triceps reflex negative. Left patella reflex present. Right patella reflex slight. No ankle clonus. A diagnosis of crushed cord was made. He became delirious (evidently alcoholic) and nothing was done for eight days after entrance, until he had recovered from the delirium. Examination of the eyes by Dr. Kilburn showed the right pupil larger than the left under all circumstances. The pupillary reflexes were excellent and nothing pathologic was found in the fundus.

*Operation.*—At operation by Dr. Bottomley the fifth, sixth and seventh cervical spinous processes were removed with their laminæ; the dura was found distended with clear fluid, which escaped in considerable quantity. Over the cord, at the level of the fourth and fifth vertebræ, was a thin blood clot, adherent and several days old. The wound was closed, allowing for a rubber tissue drain to the subdural space. Patient recovered well from the operation, but soon developed bedsores and passed bloody urine for several days. Nine days later the temperature suddenly rose, vomiting began, and he gradually failed, and died twelve days after operation.

No autopsy was obtained.

FRACTURE OF THE ODONTOID PROCESS.

CASE 6.—Man, aged 42, entered the Carney Hospital in April, 1904.

*History.*—Two years ago the patient fell from a staging, landing on the top of his head. Ever since the accident he had been compelled to hold his head flexed, with the chin resting on his chest, being unable to rotate it actively or passively without pain.

*Examination.*—He had lost the power of extending his head voluntarily, although there was no paralysis of the muscles. Over the second cervical spine there was marked prominence. There had been no paralysis, and a year before I saw him the left posterior neck was explored by the orthopedic department, with negative results. He was then fitted to a form of chin support which held the head in normal position. As soon as this was removed the head immediately fell forward and the patient was unable to extend it voluntarily. For about a year he had complained of pain in his left shoulder, arm and leg, varying in severity. He was not so strong as formerly in his arms and legs, and he had been unable to work on account of the impairment of his head motion. He entered the hospital seeking operation and we hoped that possibly some relief might be obtained.

*Operation.*—Under ether an incision was made down to the spinous process of the axis. This was apparently normal, as were also the third and fourth spines and laminæ. The vertical distance from the tip of the second spinous process to the posterior tubercle of the atlas appeared normal. The atlas rotated with the occiput through a normal arc. Extension and flexion of the occiput on the atlas were normal. By directly pushing the head backward the atlas moved with the occiput without change of their mutual relations, but the atlas slid backward on the axis so that its posterior tubercle lay in the same plane as the second spinous process or, in other words, the atlas slid backward and forward on the axis for at least one-half an inch, their vertical relations remaining normal. It seemed clear that this could be accounted for only by a fracture of the odontoid process at its base, allowing the structures above to move forward and backward within the limits of the anterior and posterior ligaments between the occiput, atlas and axis. Although rotation without ether was limited, under ether it was free in both directions. It did not seem possible that the normal position of the bones could be restored and maintained by any operative procedure, so the wound was closed in layers and the patient returned to the ward. He recovered quickly and was discharged in ten days, wearing the chin support and claiming that the pain in his shoulder was not so severe as before operation.

SUBACUTE FRACTURE-DISLOCATION.

CASE 7.—Boy, aged 14, entered the Boston City Hospital in August, 1902.

*History.*—Nine weeks before the patient, an acrobat, while turning a back somersault from a man's shoulder, fell, landing on the back of his neck. He arose immediately to his knees, but was unable to rise any farther. He was then carried to the anteroom and since then had been unable to walk. He recalled that he was unable, positively, to move the lower extremities on the day following the injury, but that he could use his hands awkwardly. Three days after the injury he went to a hospital in Virginia, where electricity was applied to his arms and legs. Since the accident he had remained in bed, the forearms and hands becoming atrophied. His appetite

had been good and he had been able to control his rectum. For six weeks he had incontinence of the bladder, and for a short time after the accident he had had pain in the neck.

*Examination.*—At entrance to the City Hospital he lay completely relaxed. Pain, tactile, hot and cold sense, and stereognostic sense were normal in his upper and lower extremities. The pupils were normal, knee jerks lively, and the cremasteric reflex was present. The motions of the head and neck were complete. Flexion and extension of the forearm were strong, but there was atrophy and weakness of both the flexors and the extensors of the fingers. Extension of the wrist was incomplete, the hand grasp was weak, and the muscles of the thumb, especially, were atrophied. In the thighs there was complete paralysis, at times flaccid, at other times spastic. There was slight prominence of the seventh cervical vertebra.

*Operation.*—At operation the seventh cervical and first dorsal laminæ were removed. The dura was translucent, not pulsating, and on being opened a small quantity of fluid escaped. Pressing against the dura was an arachnoidal sac, with much serum under pressure. The arachnoid was attached to the dura and laterally to the cord and nerve roots, so that in freeing it fresh bleeding took place. It was freed as far as a probe could reach, and opened. Both membranes were left open and drained by a small rubber wick carried out at the lower angle of the superficial wound, which was closed. The wound healed by primary union after a few days' drainage of serum.

*Result.*—His general condition improved, but he did not regain control of his legs at once. Three weeks after operation he began to see improvement in his arms, and was discharged four weeks after operation, relieved. After his return home the paralysis of the lower extremities disappeared, he steadily gained, and when seen nine months after operation he was at work, able to run, walk, and use his hands almost normally, exhibiting only a slight atrophy of the back of the forearm.

### CHRONIC CERVICAL PACHYMENINGITIS.

CASE 8.—Man, aged 40, entered the Carney Hospital in March, 1904.

*History.*—Twenty years ago he had had syphilis, for which he was treated successfully at the time. Sixteen months ago he noticed a slight weakness of the left arm, which gradually increased until he lost control of the left hand and arm. The right hand began to grow weak two months ago and the patient complained of severe pain in the back of his neck and the base of his head, which was especially marked on walking, relief being obtained by lying down.

*Examination.*—There was no ataxia, but some pain in his feet and toes. Dr. Bullard's examination showed that the pupils were equal, reacting normally. The external orbital muscles were normal. There was slight unsteadiness of the right eye on convergence. No tremors of the tongue. Numbness below the occiput, stiffness of the muscles of the posterior neck, especially on the right side. Pains shooting up the right neck to the right ear. Occasionally very difficult swallowing. The right side of the neck posteriorly appeared flattened. The right shoulder was slightly lower than the left; the sides of the chest were about equal. Passive motion of both arms normal. Both triceps reacted normally. Some diminution of the sense of touch and pain in the left arm; some atrophy of the left upper extremity, most marked in the left hand, but the interossei were not affected. Atrophy of the thenar and hypothenar eminences. Left arm smaller than the right. Knee jerks active. No clonus. Babinski absent. Left arm 1 cm. smaller than right. A little later some diminution of sensation was found over the left deltoid and the upper two-thirds of the anterior and outer surfaces of the left arm; there was, possibly, slight diminution of pain. Still later, a week before operation, there was involuntary twitching of the left posterior muscles of the neck, more marked on the left than on the right. Atrophy of the right shoulder more marked. Triceps reflex in the left arm better than in the right. There was diminished sensation over the left deltoid. He complained of a dead pain from the left shoulder down the left arm. The pains in the right posterior part of the neck were increased on walking, but disappeared immediately when lying down.

*Operation.*—At operation by Dr. Bottomley the fifth and sixth cervical laminæ were removed. The dura bulged and was evidently under considerable pressure. On incision a clear fluid spurted out, several ounces escaping. The probe passed downward met with no obstruction, but on being passed upward met with fairly firm adhesions, which were broken up by the probe. There was free hemorrhage from the veins of the dura, controlled by hot wicks. The dura was partially closed with catgut and the wound closed, allowing for a temporary drain.

*Result.*—By the end of two weeks the grasp of the right hand began to improve and in another two weeks the patient went home, with still more marked improvement and with beginning improvement in the left hand. Since that time he has steadily been gaining.

### SECTION OF POSTERIOR ROOTS FOR PARALYSIS. TWO CASES. THREE OPERATIONS.

CASE 8.—Man, aged 55, has been reported in detail by Dr. Morton Prince,[1] and from his account I will condense a few details that concern us surgically.

*History.*—The patient, struck by a train, received a Colles fracture of the left wrist and developed a complete paralysis of nearly the whole left arm; the paralysis, typical of a neuritis of the brachial plexus, had persisted for over a year. The most diseased fibers were apparently from the fifth, sixth and seventh cervical segments, while those from the eighth cervical and first dorsal were partially implicated. He suffered most intensely from pain located chiefly in the thumb and forefinger.

*Treatment.*—He was under treatment in the clinic for nervous diseases of the Boston City Hospital for a long time, and for the relief of the pain, which was intense, three different operations were undertaken at various times; that is, the radial was stretched in the forearm without relief; later he underwent some other operation at another hospital, the nature of which could not be learned; later still, fifteen months after the accident, I explored the brachial plexus in the axilla and found that all the nerves looked normal, except the ulnar, from about three inches from its origin downward. It had lost its striated, opaque look, was translucent in the center and somewhat crinkled. There was thickening about the humerus, apparently from cicatricial tissue of the soft parts. The plexus was thoroughly freed from the scar tissue and the wound closed.

*Operation.*—He derived no benefit from this operation and, at Dr. Prince's suggestion, in October, 1899, a laminectomy was done under ether. A long incision was required because of a thick, fat neck. There was much bleeding in the first part of the operation, requiring tedious hemostasis. The sixth, fifth, fourth, and part of the third cervical laminæ were removed. On opening the dura at the lower angle some vessels of the subdural space were injured and caused troublesome venous bleeding that could be controlled only by packing under the lamina. So far as could be determined, the left posterior roots of the seventh, sixth and fifth nerves were found and freely cut close to the cord. The dura was then sutured, but not completely closed, and the wound closed except for a wick, which was placed down to the subdural space to control oozing. The operation was long and tedious, but the patient had comparatively little shock. The wound closed aseptically, and from the moment of coming out of ether the patient was free from pain in all the previously affected areas.

*Result.*—After he began to get about, however, it was noticed that he exhibited a limp and weakness of the left leg, and examination showed a moderate Brown-Séquard paralysis. Dr. Prince, at the time of operation, feared the possibility of a clot forming within the dura and called my attention to it at the time, and it is probable that the paralysis was due to pressure from this source. Gradually the patient developed severe pain posteriorly in the neck and at the time of discharge from the hospital, three months after operation, he still suffered from severe pain, though in a different region from that

1. Brain, 1901, p. 116.

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originally affected; the cause of the pain in the neck, according to Dr. Prince, being undoubtedly due to a neuritis following injury to some nerve at the time of operation or during healing. Although the arm itself was free from pain, it was useless, and the patient was anxious to have it removed. This was promised if he was unable to make use of it at the end of a year. Five months after operation Dr. Prince examined him and found great improvement in his condition and that the operation had relieved his pain, for which it was undertaken. At the same time the neck pain had also disappeared, but he complained of pains about the shoulder, due, probably, to the weight of the paralyzed arm dragging on the capsule. The Brown-Séquard paralysis had improved very much, although the left leg was still weaker than the right. He still desired to have the arm amputated. Dr. Prince has made an interesting and able study of the areas of the anesthesia, for which reference to the original article must be made. About a year after operation the patient, probably dissatisfied with his general condition, committed suicide. No autopsy was obtained.

Case 9.—Man, aged 29.

*History.*—In 1898 his right arm was burned between two hot rollers and amputated at once at the Massachusetts General Hospital. Nine months later he entered the City Hospital for painful stump. At various times neuromata were removed from the median and from the ulna nerves. The median, ulna and internal cutaneous nerves were injected with osmic acid and in May, 1900, portions of these nerves were removed. A year later there was reamputation of the stump and severing of the nerves high up. From none of these operations did he derive relief. The patient was markedly hysterical and probably unreliable in his statements throughout. A marked hyperesthesia was found over the scapula, shoulder and anterior portion of the deltoid and the stump, where he could not bear the slightest touch on the skin. In spite of his marked general neurotic condition he was advised to have the posterior nerve roots cut to relieve his pain.

*Operation.*—In February, 1902, under ether, the laminæ of the fifth to the seventh cervical vertebræ, inclusive, were removed. On opening the dura much clear fluid escaped. As well as could be determined by previous careful measurements the sixth, seventh and eighth cervical posterior roots were cut. There was very slight bleeding from the stumps for a few moments. The dura was not sutured. The upper angle of the wound was packed with gauze tape, as there was a slight persistent oozing of blood from this point that could not be otherwise controlled. The wound was closed throughout, allowing for the wick and for a small rubber tissue drain to the subdural space at the lower angle.

*Result.*—Apparently pain in the stump diminished to a considerable extent, as it could be handled when the patient was asleep without arousing him although he winced if it was touched when awake. He complained of pain in his neck and head after operation but there was no satisfactory explanation therefor. The wound closed except for a superficial stitch abscess due, probably, to the through-and-through silkworm-gut sutures. On their removal healing progressed satisfactorily. A month after operation the patient showed some delusions and at one time was so noisy that he was transferred to a lower ward. This passed away gradually and his general condition improved except as regards his neurotic symptoms, and two months after operation he was discharged, with very slight hyperesthesia of the stump, to be treated by the neurologic out-patient department. Several of the neurologists who examined him considered that the trouble was "cerebral" rather than confined to the nerve tracts.

*Subsequent History.*—Three months or more after operation a paraplegia of the lower extremities developed gradually, and since July, 1902, he had not been able to stand, and at times complained of difficulty in micturition. He also complained that pain in the right upper extremity had returned.

Examination by Dr. W. N. Bullard, neurologist to the Carney Hospital, showed a total paraplegia of the lower extremities, with rigidity in extension, but with normal sensation to touch and pain. In addition there was a spinal epilepsy of the lower extremities, a knee clonus on the right, but on the left it could not be obtained on account of the rigidity. Ankle clonus and Babinski present on both sides; cremasteric reflex on the right, not obtained on the left. No numbness was obtained over the back or chest. There was hyperesthesia to light touch on the right upper extremity, but the sensation of pain was normal.

*Second Operation and Result.*—At the second operation at the Carney Hospital, 1904, an incision was carried down through the scar, which was found adherent to the cord posteriorly, not involving the left roots, but slightly involving the region of the right roots. The adherent tissue was easily freed from the cord, but posteriorly there was no evidence of any spinal fluid until the level below the former operation was reached. The left posterior roots appeared normal. The cord itself appeared of normal size and consistency, but without evidences of any pial vessels. In the lower third of the wound were fibers of probably the first dorsal root, which had not been cut at the preceding operation. Above this the root stumps were atrophied, lying flat, adherent to the cord, except one small fiber, which apparently had not been cut or else had reunited. This fiber and the intact root below it were severed and the stumps trimmed down to a level with the cord. The remains of the dura were then freed laterally from the cord above and below and some fine silver foil placed against the cord, over which the dura was sutured with catgut. The wound was sutured in layers and a cocoon dressing applied.

After operation the patient was sitting up early and the wound united *per primam*.

Examination ten days later showed that the pain in the upper extremity had diminished, that there was diminution of sensation to pain from the fourth to the sixth space in the right nipple line, no hemianæsthesia on the right and abdominal sensation normal. The paraplegia remained as before operation, though some voluntary motion of the toe was reported. No hyperesthesia of the stump was found. Slight diminution of sensation all down the right back and thigh was found, but as it varied at different times, it probably was functional.

MYELOMA OF THE SPINE.

Case 10.—Man, aged 39, was seen with Dr. Hunting of Quincy, in consultation with Dr. J. J. Thomas, in December, 1900. It was reported before the American Neurological Association by Dr. Thomas in June, 1901, and from his article I shall quote freely.

*History.*—The patient, a lawyer, without any previous history of importance, in August, 1900, was seized by severe pain in the shoulders, which confined him to bed for four or five days. Since that time there had been more or less pain, but not confining him to his bed. Beginning with October of the same year, he noticed slight uncertainty in the use of his legs, and once, while stooping, fell on the floor. This was more noticeable in the dark than in the light. He had noticed numbness in the feet and tightness about the abdomen, together with difficulty in holding his urine after the desire to micturate had come on, and at times there was difficulty in starting the urine.

*Examination.*—The pain in the back was aggravated on motion and diminished with rest. Sensation to touch and pain was diminished below the level of the spine of the eighth dorsal vertebra on the eighth rib.

*Treatment and Result.*—The diagnosis of pressure on the cord, probably from tumor, was made and he was placed on anti-syphilitic treatment and a plaster jacket was applied. A month later the gait had become slightly ataxic, with incoordination. The knee jerks increased, the other reflexes varying at different times. Pain and temperature sense became diminished and the patient complained of an increase in the uncertainty in his gait. A month later the gait was slightly spastic and ataxic. The pupils at this time reacted rather sluggishly to light and the left was slightly the larger. There was a slight swelling on the left fifth rib, which had been noticed before, but it was not tender.

*Operation.*—Operation was advised and done on December 20

at the Quincy Hospital. On the day of operation the urine, which had previously been normal, was suddenly found to give a heavy precipitate, with heat, disappearing partially on boiling the urine. This was thought to be albumose and its presence was confirmed later. At operation the first, second, third and fourth dorsal laminæ were removed. The lamina of the fourth on the left side was thin and bluish, with the cortex destroyed on the upper posterior surface over a small area. The medulla of the spinous process and the lamina was filled with a soft reddish material and on being traced to the left it was found extending anteriorly through an opening alongside the head of the rib, admitting a finger, the rib itself not being eroded. This tract continued to the left side of the vertebral body, where the bone was loose and rough, easily bleeding and evidently infiltrated with a new growth. In all probability some of the same growth lay anterior to the lamina, pressing on the dura, but otherwise without infiltrating it. The dura looked healthy and was not tense. Through the unopened dura the cord felt normal. There was no evidence that the growth had pushed anteriorly to the posterior mediastinum. As much growth as possible was curetted out, the cavity in the vertebral body packed with iodoform gauze and the wound closed, allowing for the gauze drain. The patient stood the operation well and the pulse was excellent at the close.

*Result.*—Following operation the patient developed a complete paraplegia, with retention of urine. This gradually improved and the wound healed well. Two weeks later, when seen by Dr. Thomas, all movements of the legs and feet were performed normally and with good strength, and there was marked gain in sensation. Heat, cold, pain and touch were perceived fairly well almost everywhere, though in various small areas the improvement was not so great as in general. He could control the bladder for the most part. Careful analysis of the blood, urine and growth was made—for which the reader is referred to Dr. Thomas' original article—the urine showing albumose and examination of the tissue showing myeloma. Dr. Hunting then placed the patient on bone marrow and Coley's toxin and by March he was attending to his business and was feeling as well as ever in his life. At various times myelomata appeared in one rib and another, but there were no more symptoms of cord pressure.

Dr. Thomas has carefully examined the literature of these cases, which will not be considered in this article.

On June 1, 1904, Dr. Hunting wrote me as follows: "About one month after operation I began treatment with bone marrow and Coley's serum, increasing up to 15 minims, dependent on the reaction produced. I gave it at first three times a week, then twice, and during the summer I stopped it altogether while the patient was away in the country. For the last two years he has had about 7 minims of the serum once a week. At first the injections caused fever, delirium and pain at the point of myelomatous swelling. Of late, however, only pain and a feeling of malaise is produced, which passes off in about a day. He has had a good many points of pain, swelling and tenderness on different ribs, with three or four subcutaneous fractures. There is quite a marked kyphosis at the fourth dorsal vertebra, due, probably, to collapse of the vertebra and lack of support from the ligaments of the spine. He has refused to wear a jacket, as it presses on the tender points in the ribs. He has had several twists and falls, a severe bronchitis, and recently a mild pneumonia. He has attended to his business except when temporarily laid up, has a good appetite and digestion and sleeps well, his urine varies in quantity, but is always increased and contains from a trace to ½ per cent. of albumin, albumose and globulin. His present condition is fair. He attends to business, but is easily tired, occasionally but not often complains of weakness and numbness of the legs and feet. Most of his pains are apparently due to intercostal neuralgia or to collapse of the vertebræ."

## DISCUSSION.

DR. F. B. LUND, Boston—Dr. Munro has rightly stated that these cases are among the most discouraging that a surgeon has to treat. There can be very little question but that in many cases falls from heights form a large proportion of the causes. There are some cases in which the cord is pressed open where the symptoms do not differ from those of a crushing of the cord itself. Many of the Army surgeons advocate letting these injuries alone. It is difficult to get at the lamina and elevate them without damaging the cord. I have seen a burly ice man who had fallen from a great height brought to the hospital with sufficient pressure on the spine to probably cause death from shock. By properly constructed forceps the operation may be done with moderate shock, and in cases in which the patients come into the hospital in a state of shock it is well to wait a certain length of time. I have seen a case where the cauda equina was pressed on, and removal of the lamina against which the cauda equina was pressing enabled the patient to walk out of the hospital. I have had no fatalities from similar cases, but know in some that I did no good. If one does not remove the bone nor attempt to see how badly the man has been hurt, one has not done his duty to the patient nor given him a chance for recovery.

DR. HARVEY CUSHING, Baltimore—Cases of hematomyelia must be carefully selected from those of fracture.

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# RUPTURE OF MESENTERIC GLANDS DURING TYPHOID FEVER

### SIMULATING INTESTINAL PERFORATION; REPORT OF A CASE WITH OPERATION AND RECOVERY.*

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The profession has long recognized that among the various lesions which may produce a peritonitis in the course of typhoid fever, rupture of the mesenteric glands is one, and yet in the many text-books which have been consulted there is not a reference given to a specific reported case. Nothnagel's "System" and Osler's "Practice," for example, fail to give a single instance of a mesenteric gland producing peritonitis; but each mentions it as a possible cause of such a complication in enteric fever. Keen[1] records references under this heading, but all of them prove to be cases of obscure peritonitis of unknown origin, where the reporter has only suggested the possibility of a ruptured mesenteric gland being the cause. It would, therefore, seem that such an occurrence is very uncommon, and a search through the recent literature on the subject tends to confirm this view, for I can find but one recorded case, and another unpublished record from the Episcopal Hospital notes. These two cases terminated fatally. I therefore propose in this article to review the theories advanced for enlargement of the mesenteric glands during enteric fever, and to discuss the probable causes which lead to perforation of the mesentery with a resulting peritonitis.

## ANATOMY.

The mesenteric glands constitute one of the most important glandular centers in the human system.[2] Their number varies from 130 to 150, and they may be divided into three more or less distinct groups, which vary in importance and significance.

1. The primary group comprises some small glands placed in the course of the terminal arterioles springing from the last anastomotic arch of the vessels. This

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1. Surgical Complications and Sequelæ of Typhoid Fever.

2. Poriere, Cuneo and Delamere: The Lymphatics. English translation by Cecil H. Leaf.

group may be considered as a simple interrupting glandular nodule which has no morphologic fixity.

2. A second group comprises the glands placed in the course of the primary branches of the superior mesenteric artery, and at the level of the first anastomotic arch formed by these vessels. These glands, which are larger than the preceding, are the true regional glands of the ileum, and it is the enlargement of this group which concerns us most in typhoid fever.

3. A third group is found around the trunk of the superior mesenteric artery, and more particularly around the commencement of this vessel. This group does not properly belong to the jejunoileum, as it receives in addition the efferents of the regional glands of the cecum, ascending and transverse colon, duodenum, and even the afferents of certain glands connected with the stomach.

The second group of glands are especially numerous in that portion of the mesentery which corresponds to the jejunum. There is a progressive diminution in their number in each given segment of the mesentery until the terminal segment of the ileum is reached. Here, in this terminal segment and in the ileocolic region of the mesentery, the glands reappear in numbers and form an important mass around the ileocolic artery. It is this group of ileocolic glands which generally shows the greatest change and enlargement in typhoid fever. The collecting trunks for these glands form two systems relatively independent of each other, one of which is attached to the mucous layer and the other to the muscular coat of the bowel.

## PATHOLOGY.

The changes that take place in the mesenteric glands are intimately connected with the lesions of the intestine.[3] They are as constantly enlarged as the lymphatic structures of the intestines, and exhibit the same characters of medullary infiltration. In general, the localization of the process in the glands corresponds to that customary for the intestinal lesion, so that the glands in the lower part of the ileum, cecum and adjacent regions of the colon are most frequently involved, and in the greatest degree. Under exceptional circumstances profoundly involved portions of the intestine may exhibit slight glandular involvement, while, on the other hand, a slightly developed intestinal lesion is sometimes associated with disproportionate glandular hyperplasia. The involvement of the mesenteric glands is practically simultaneous with the infiltration of the lymphatic structures of the intestine. The glands become prominent as early as the first week, and attain their maximum size at the height of the disease. They may vary from the size of a pea to that of a walnut or an egg; they are tensely elastic, grayish-red or bluish-red in color, globular, smooth, or of a somewhat nodular surface. On section the projecting glandular structure is more markedly reddened in the cortical than in the medullary portions, the latter at times presenting a grayish-red, or in the center even a yellowish-red appearance.

Ribbert[4] claims that the primary swelling in the intestine and mesenteric lymph nodes is due to the typhoid bacillus getting into the lymph sinuses and causing an acute inflammatory exudation of serum and leucocytes into the outer portion of the lymph nodules and the adjoining tissue. After a certain time the exudation disappears and is followed by an intense proliferation and desquamation of the endothelial cells lining the reticulum of the lymph spaces. These cells are occasionally phagocytic; the real lymphoid nodules, according to him, play no part in the process. Later necrosis and sloughing of the newly formed tissue occur, and repair by granulation tissue follows.

Mallory,[5] on the other hand, does not believe that the presence of the typhoid bacillus in the lymph sinuses is essential, and that the proliferation of the cells is due to a diffusible toxin present in the blood and organs. This toxin is produced by the typhoid bacillus in the intestinal tract, and as a result of its absorption it stimulates the endothelial cells to active proliferation. He calls attention to the fact that the lymph sinuses are always more affected than the nodules and cords of the lymphoid cells. They become widely dilated and filled with large phagocytic cells containing mainly lymphoid and plasma cells, but also occasionally red blood globules. These large cells are derived in part, if not entirely, from the endothelium lining the loose reticulum of the sinuses. In the lymphoid tissue between the sinuses a proliferation of the large cells lining the reticulum takes place, just as in the intestine. Sometimes it is most marked centrally; sometimes diffusely or peripherally. These phagocytic cells invade the coats of the smaller blood vessels, penetrating to the intima, where they degenerate and cause occlusion of the veins and capillaries by forming fibrinous thrombi. Necrosis in the lymph nodes takes place in the same manner as in the intestine through thrombosis of the blood vessels. When it occurs it is always most marked and most extensive in the lymph sinuses. Sometimes the typhoid process extends outside the lymph nodes into the adjoining fatty tissue, and these areas may also become necrotic. In many cases the lymph nodes do not undergo necrosis, but instead resolution takes place. The cells rapidly show signs of degeneration and disappear. Apparently resolution can occur even when fairly extensive necrosis exists in the lymph sinuses. Mallory, therefore, believes that histologically the typhoid process is proliferative and stands in close relationship to tuberculosis, but that the lesions are diffuse and bear no intimate relation to the typhoid bacillus, while the tuberculous process is focal and stands in the closest relation to the tubercle bacillus.

The postmortem examinations made at the Pennsylvania Hospital by Dr. W. T. Longcope are interesting in this connection. During the last three hospital years—from May, 1901, to May, 1904—1,958 cases of typhoid fever were under treatment in the institution. Of this number, 158 died, a mortality of 8.07 per cent. Of the 158 cases that died, 65 came to the postmortem table. In many of these cases the ileocolic group of mesenteric glands were enlarged to the size of walnuts, soft in consistency and of a reddish-gray color. The capsule was thickened, tense and firm, and in no instance showed signs of degeneration. To the naked eye the glands presented no signs of necrosis, although the microscopic sections showed minute necroses usually to be present. The mesenteric tissue outside of the glandular structures showed little or no sign of inflammatory products. In the majority of instances the typhoid bacillus was present in the glands in large numbers and in pure culture. No one of these 65 cases showed the slightest evidence of softening of the capsule of the glands, nor any tendency toward perforation.

3. Nothnagel's Encyclopedia, volume on Typhoid Fever, p. 100.
4. Lehrbuch der pathologischen Histologie.
5. Histological Study of Typhoid Fever, Jour. Experimental Med., vol. iii, p. 611.

We may, therefore, conclude that whatever the cause of the pathologic changes in the glandular tissue, whether due to a diffusible toxin secreted by the typhoid bacillus in the intestinal tract, or to the presence of the bacillus in the glandular structures, we have present as constant elements of the disease: 1, Active proliferation of the cells with great enlargement of the gland; 2, thrombosis of the veins with the production of minute areas of necrosis and softening which ultimately end in resolution; 3, thickening and strengthening of the glandular capsule.

### CAUSES OF PERFORATION.

To produce perforation of the gland we must, therefore, look for some causes other than those just mentioned; something, perhaps, of an accidental nature which may very occasionally take place. In this connection I would suggest two possible causes from a theoretic standpoint alone, as I have no clinical evidence to bear them out.

*First.*—Through extension of the typhoid process outside of the glandular capsule the coats of some of the larger veins or arteries may be infiltrated by the phagocytic cells, producing occlusion of the vessels and interfering with the blood supply to the glandular capsule. Under such circumstances we would naturally expect necrosis of the capsule to follow, with perforation and liberation of the contents of the gland.

*Second.*—The accidental presence of staphylococci or streptococci in the glandular tissue which have gained entrance through the eroded mucous membrane of the bowel. If such pus-producing organisms should gain entrance to a gland already filled with minute necroses, it is easy to believe that they would soon gain a firm foothold, rapidly multiply and liquefy the glandular tissues, with ultimate perforation of the capsule.

Pennsylvania Hospital, Case 2175.

*History.*—M. D., Hungarian, aged 22, was admitted to the Pennsylvania Hospital Oct. 14, 1903, under the service of Dr. J. A. Scott. The patient did not speak English. He had been sick for eight days with fever, diarrhea, prostration and pain in the head and abdomen.

*Examination.*—On admission he was found to be a well-nourished man. The conjunctivæ were slightly injected; tongue moist, coated, tremulous; chest negative except for a few râles at the base of the right lung, posteriorly; abdomen soft; spleen enlarged and palpable; urine negative; leucocytes 5,700; Widal reaction suggestive; temperature ranging from 101 to 104 degrees; pulse 86 to 100; respirations 24 to 28.

October 18. Twelfth Day.—Typical rose spots appeared over the back and abdomen. Tubbing, which had been ordered, was discontinued, owing to the marked cyanosis produced in the patient. Blood culture gave pure cultures of typhoid bacillus.

October 23. Seventeenth Day.—Continuation of the typical symptoms of a moderate attack of typhoid fever. Leucocytes 4,200.

November 4. Twenty-ninth Day.—Abdomen painful and distended; relieved by enema. Temperature on a lower level, ranging from 100 to 102.

November 8. Thirty-third Day.—Abdomen again very much distended and painful. Leucocytes 3,500; pain and distension not relieved by enema.

November 9. Thirty-fourth Day.—During the night there was a sudden rise in temperature to 104 3/5, but by morning the temperature had dropped to normal; distension had increased; slight rigidity of the right rectus muscle; considerable tenderness; liver dullness almost obliterated; abdominal pain complained of only on coughing. Two leucocyte counts a few hours apart were made, each one showing 3,500 white cells. Pulse and respiration unchanged. No sign of collapse. A consultation was held and it was decided to await developments.

November 10. Thirty-fifth Day, 5 a. m.—Patient complained of sudden, very severe abdominal pain. Temperature subnormal; pulse and respiration not increased; distension, tenderness and rigidity about the same as on previous day. 10:30 a. m., leucocyte count 5,400; condition about the same, pain continuing; operation decided on.

*Operation.*—11 a. m. Ether administered. Three-inch incision through the outer border of the right rectus; a small amount of ascitic fluid without odor escaped. Localized peritonitis present. The lower portion of the ileum much inflamed, covered in places with patches of lymph, with some deep ulcers, one of which looked as though it was about to perforate. These suspicious areas were folded in with Lembert sutures. The mesentery at the junction of the ileum and cecum was much thickened and inflamed and the ileocecal glands were much enlarged, one of them having broken down and perforated through the peritoneal coat. In the immediate neighborhood of this gland the mesentery was very thick and infiltrated with inflammatory products. A portion of the broken-down and extruded gland was found free in the peritoneal cavity. The gland was curetted and the remaining cavity in the mesentery packed with a strip of gauze. The abdominal cavity was then flushed with sterile salt solution and the area surrounding the perforated gland walled off from the remaining part of the peritoneal cavity with gauze. The abdominal wound was not sutured.

*Recovery.*—For three days the temperature ranged from 99 to 100, then dropped to normal and subnormal for a week, when there was again a slight elevation of temperature for five days. On November 19 the last of the gauze packing was removed, and by November 30 the wound was practically closed. The convalescence was uneventful.

*Pathologic Report of Specimen and Cultures by Dr. W. T. Longcope.*—Section through a small mass of the tissue showed a necrotic tissue suggesting lymph gland with indefinite lymph sinuses filled with necrotic cells, blood vessels and reticulum in which lie necrotic cells. In some places there was nothing but a pinkish necrotic material. About the periphery there were a few clumps of poorly preserved lymphoid cells, together with many large, partially necrotic phagocytic epitheloid cells.

Sections stained in polychrome methylene blue showed enormous numbers of small bacilli, but no cocci were found.

Diagnosis: Necrotic typhoid lymph gland.

Cover-slips made at time of operation from intestinal exudate showed a few poorly staining bacilli, often vacuolated, with moderate numbers of leucocytes and fibrin. Bacilli did not stain by Gram's method. Culture from peritoneal fluid and exudate from intestinal surface showed no growth after 48 hours at 36.5 C. Cultures from fibrin showed no growth after 24 hours' test. At the end of 48 hours they were overgrown by *B. subtilis*. No cultures were made from the glandular tissue.

We may consider in this case two distinct causes for the production of the local peritonitis: 1, A highly inflamed segment of the ileum, showing deep ulceration and patches of lymph, but no perforation of the bowel; and, 2, a softened, ruptured ileocolic gland with extrusion of its contents into the peritoneal cavity. The patches of lymph removed from the ulcerated area of the bowel proved sterile; cultures from the peritoneal fluid also remained sterile, but the cover-glass smears from the peritoneal fluid about the mesentery showed a few vacuolated bacilli. We may fairly conclude that bacilli had not penetrated to the peritoneum through the intestinal coat, and that those extruded from the gland had not gained as yet a foothold, but were inhibited in their growth by the peritoneal secretions. The ruptured gland showed large masses of bacilli, and it would seem probable that these would soon have overcome the resisting power of the peritoneum, with the

production of a general peritonitis. It is to be regretted that cultures were not made from the glandular tissue removed.

Two similar observations recorded by others are briefly as follows:

Case 1.—H. C. D. (Episcopal Hospital Records; unpublished). Male, aged 25 years; operation Sept. 14, 1899, on the sixteenth day of the disease, 36 hours after a supposed perforation. Exploratory incision showed no marks of peritonitis; intestines very much distended; no perforation found; drainage; death in three days.

*Autopsy.*—Ruptured and suppurating mesenteric gland; no perforation of intestine.

Case 2.—J. C. M.[6] Male, 27 years old. Early in the disease he had slight tenderness in the upper abdomen, but no further signs developed until the day of operation, when mild delirium began. At 7:30 a. m. pulse rose to 120, the face looked pinched and white, and he became semi-conscious. At 8:45 a. m. he collapsed, with a rapid pulse. The left side of the abdomen became more distended than the right, but no spasm or rigidity was noted. He grew worse, and Dr. Munro saw him in consultation a few hours later, when he obtained the following additional history: About five hours before operation he had collapse, with increasing pulse, tender and painful abdomen and increasing delirium. He found spasm not definitely localized, though the pain had started in the left iliac fossa. The patient was in a very poor condition and operation was advised as a last resort.

*Operation.*—Ether; median incision; slight excess of fluid; no pus; no suppuration; swollen glands; too ill for careful examination; death in about 12 hours.

*Autopsy.*—This showed two swollen glands, softened and purulent, which had ruptured and caused a local peritonitis with adhesions of the adjacent gut.

### STATISTICS.

We may judge of the rare occurrence of perforation of the mesenteric glands in typhoid fever in two ways: 1, The very few cases that are reported in literature, and, 2, from the statistics of the Pennsylvania Hospital, where on an average more than 600 cases of typhoid fever are under treatment each year. The case reported above is the first one we can find any record of in the hospital. As previously stated, during the past three years 1,958 cases of typhoid fever were under treatment in the institution, of which 158 died, and in 65 of these a postmortem examination was made. In this number we had ocular proof of 29 cases of perforation of the bowel, either on the operating table or on the postmortem table, but there were in addition several cases that had all the clinical symptoms of perforation, in which operation or a postmortem examination was refused. We can readily see, then, that compared with perforation of the bowel, perforation of a mesenteric gland is extremely rare.

### CONCLUSIONS.

1. Swelling of the mesenteric glands is a constant lesion of typhoid fever.

2. That such enlargement is due principally to a proliferation of the endothelial cells lining the lymph sinuses.

3. That these cells by penetrating the walls of the capillaries and smaller veins produce thrombosis, with resulting minute necroses.

4. That such necrosis ends in resolution.

5. That perforation of the capsule of the gland is dependent on some causes other than the presence of the typhoid bacillus and thrombosis of the smaller glandular vessels.

6. That perforation is probably due either to the presence of the staphylococcus or streptococcus in the gland, or to thrombosis of larger vessels of the mesentery outside of the gland.

### DISCUSSION.

Dr. L. J. Hammond, Philadelphia—The five cases in literature sufficiently analogous to this one enable us to draw conclusions as to the cause or mode of invasion of the infection. From these five cases we learn that only two of them had lesions of the bowel sufficiently extensive to justify the belief that the infection took place through this source, while the additional grave complications were sufficiently great to overshadow the intestines as the focus of infection. In three cases there was associated splenic abscess, liver abscess, thrombus of the superior mesenteric vein and empyemia. At the autopsies in three cases the intestinal ulcers were not sufficiently extensive to justify the probability of infection from this source. It is doubtless a fact that the second group of glands, already described, convey the infection from the spleen, as occurred in one of the cases in this group, thus leaving out the intestinal tract as a factor *per se* in the production of this type of infection in the larger percentage of the cases. There are 29 other cases recorded of abscess where no perforation of the peritoneal coat had as yet taken place, liberating the pus in the peritoneal cavity; the glands were, however, so distended with pus that it was natural to assume the fluid would have soon been free in the peritoneal cavity. An analysis of these cases shows that the involvement of the glands need not necessarily correspond in proximity to the usual position of the lesions in the intestinal tract, We also learn that the gland is in all probability not involved simultaneously with the intestinal tract, but on the contrary the records show very clearly that the suppurative process takes place much later. Most of the cases show that seldom earlier than the thirtieth day were there symptoms such as rigor or chill, accompanied by increased pulse, elevation of temperature, and a lump discovered in this region. A distinct lump, at first hard, later soft and fluctuating, was present in all the cases in various positions, but in every instance to the right of the hypogastrium. In none of the cases did the evidence of the glandular involvement appear earlier than this. This complication may be looked for during the early convalescence, but in one case the evidence in the shape of tumor in the right iliac fossa did not appear until four and a half months after apparent recovery. As to the theories advanced concerning the channels of infection, it seems quite probable, in view of the study of the history of these cases, that the correct theory is that the infection takes place during the endothelial cell proliferation and is due to the products of typhoid process rather than to a direct bacillus infection. This theory is confirmed by the fact that in but one of these cases was the typhoid bacillus found in the pus. The hyperplasia of the lymphatic gland is, while generally found, not a constant symptom of typhoid fever. I have found, in a record of 72 autopsies on typhoid subjects, 3 cases where there was no enlargement of the mesenteric glands discoverable.

Dr. L. L. McArthur, Chicago—I have had one case, which occurred three months ago. The patient was in the seventh week of typhoid and had been showing for a week evidences of a localized peritonitis. Examination of the patient revealed what I thought was a retrocecal appendiceal inflammation, with pus formation. It was possible to readily open the abscess without opening the general peritoneal cavity. Twenty-four days after opening the abscess, and with the local symptoms all gone, the patient died of pneumonia. At the postmortem a broken-down gland situated near the ileocecal junction was found as the source of the pus. The appendix was normal.

Dr. D. N. Eisendrath, Chicago—I desire to add another case which is similar to the one which Dr. Le Conte has just reported. The patient entered the medical service of Michael Reese Hospital with all the typical symptoms of typhoid. The Widal test was positive, and the course of the disease sustained the diagnosis. Suddenly, during the third week, the patient began to complain of pain in the right half of the abdo-

6. Boston Medical and Surgical Journal, Feb. 5, 1903, Case 23: Trans. Amer. Surg. Asso., 1900, p. 418.

men; the temperature became subnormal, with symptoms of collapse, and rigidity of the abdomen. A diagnosis was made of intestinal perforation, and laparotomy was performed, but no perforation was found. The patient continued to have the same symptoms for thirty hours, and died. The autopsy showed the typical typhoid lesions in the small intestine, but no perforation. One of the mesenteric glands, enlarged to the size of a walnut, contained pus and had ruptured. There is scarcely a doubt in my mind that this case belongs to the class that has been described by Dr. Le Conte as a rupture of the mesenteric gland in typhoid.

DR. C. E. THOMSON, Scranton, Pa.—I recall a case of typhoid which in the sixth week developed a pain over the kidney on the left side. Examination showed a thickening, and under cocain I evacuated six ounces of pus. In a few days pain developed on the opposite side and the temperature went up. I made an incision under cocain on this side and evacuated eight ounces of pus. The patient then went on to a recovery.

## A CASE OF RETROPERITONEAL FIBROLIPOMA.*

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The following case of a retroperitoneal fibrolipoma is so typical of this rare form of abdominal tumor, at the present time receiving in general but indefinite recognition and differentiation, that it seems to justify a detailed presentation. On account of the necessity for anticipating the malignant degeneration to which all such connective tissue tumors are more or less prone, as well as preventing the serious involvement of various organs even by a benign overgrowth, an early diagnosis is of great importance. This, in view of the frequent paucity of symptoms and obscure local signs, is difficult and but infrequently made before the condition has rendered an operation impossible or extremely hazardous.

In 1897 Adami[1] gave the immediate mortality from operation of the twenty-six instances he was able to collect at 53.9 per cent. One recurrence increased the mortality to 57.7 per cent. I have collected in addition to these three successful cases, one abandoned at operation and one death without operation. This mortality from an almost benign growth is higher than that obtained by many operators for carcinoma of the breast, and it is to be hoped that further attention to this affection and systematic detailed reports of all cases will give the condition a better prognosis from surgical intervention.

Broca's[2] case, reported in 1850, seems to be the first definitely recognized instance of this disease. Terrillon,[3] in 1886, collected the fifteen cases published up to that time with one of his own. Terrier and Guillemain,[4] in 1892, reviewed Terrillon's work and added two cases of their own. Several other cases which they report at the same time are of omental or doubtful origin. Josephson and Vestberg,[5] in 1895, published an excellent article, collecting twenty-nine cases with one of their own. They divide these growths histologically into fibro-myxo-lipoma and myxolipoma.

Adami,[1] in 1896, published the best article that has been written on the subject, collecting forty-two cases including two of his own, with a very full bibliography. One of his cases weighed forty-one and the other forty-one and a half pounds.

His most important contribution to the subject is a classification of these retroperitoneal lipomas according to origin: 1, those definitely perirenal; 2, doubtful; 3, mesenteric, thus calling attention to the two distinct points of origin, perirenal and mesenteric fat. This division should certainly, as he suggests, "be of service in calling the attention of future observers to the need for more exact descriptions of the position of the tumor when first recognized, and relationship at operation or autopsy."

Of the forty-two cases about twenty-four were considered of perirenal origin; my own belongs to this class likewise. I have been able to collect five cases, which with my own bring the total to forty-eight so far reported.

Horn,[6] in 1894, reports four cases which are not mentioned by Adami. Two are probably of mesenteric origin and two doubtful. Horn's own case, that of a woman 53 years of age, was successfully operated on by Fritsch, the tumor, a myxolipoma, weighed seventeen pounds.

In Laurenbaus' case, a retroperitoneal lipoma weighing thirteen and a half pounds was successfully removed by Olshausen from a woman of 42 years. The kidney and spleen were in normal position; the ascending colon covered the growth. Koefoed abandoned his case after exploratory laparotomy, on account of the extent of the mass. The growth was a myxolipoma of the mesentery. Horn[6] also mentions a case which Professor Kirstner operated on successfully. Mudd[7] reported a case in 1889 in which a retroperitoneal lipoma weighing sixty-six pounds was found at autopsy. The abdomen was very pendulous, extending on to the thighs.

Thus it is seen that this condition is one of great rarity, the present case being but the forty-eighth so far reported, and as the fully developed condition presents a striking picture, it is not likely that many cases which have come under observation have been lost.

It is to be deprecated that these growths should be confused and regarded in the same category as retroperitoneal sarcoma. Only three of the cases, those of Waldeyer,[8] Adami[1] and Stewart, have showed any tendency to sarcomatous degeneration and but one case, Tillman's,[9] has ever recurred after removal. They are definitely benign tumors and deserve distinct recognition from other retroperitoneal growths. Their structure is primarily adipose tissue with varying amount of the fibrous structure and frequently some myxomatous tissue, so that they may be denominated lipomata, fibrolipomata or myxo-fibro-lipomata, according to their individual character. Occasionally they may show cartilaginous or bony formation, as in the case of Dreschfeld.[10] According to Adami, where sarcomatous embryonic tissue is found in these large slow-growing tumors, it must be considered as a relatively recent alteration in the structure, which began as an overgrowth of highly developed tissue. It can not be regarded as a primary sarcoma with fatty changes.

About one-third of the cases originate in the perirenal

* Read at the Fifty-fifth Annual Session of the American Medical Association, in the Section on Surgery and Anatomy, and approved for publication by the Executive Committee: Drs. DeForest Willard, Charles A. Powers and J. E. Moore.

1. Adami: On Retro-peritoneal and Perirenal Lipomata, Montreal M. J., 1896-7, xxv, 529-533, 1 pl., 629-633.
2. Broca: Bul. Soc. d'Anat., 1850, p. 137.
3. Terrillon: Arch. Gen. de Med., 1886, p. 257.
4. Terrier and Guillemain: Note sur les lipomes retro-peritoneaux, Rev. de Chir., Par., 1892, xii, 747-755.
5. Josephson and Vestberg: Hygeia, Stockholm, lvii, 1895, p. 396.
6. Horn: Ueber Retro-peritoneum Myxo-Lipoma, Breslau, 1894.
7. Mudd: Retro-peritoneal Fatty Tumor, Weekly Med. Rev., St. Louis, 1889, xx.
8. Waldeyer and Freund: Virch. Arch., xxxii, 1865, p. 542.
9. Tillman: Hygeia, 1891, I, S. 277 (Abs. in J. and V.).
10. Dreschfeldt: Path. Trans., xxxi, 1880, p. 287.

fat and in their growth either push the kidney to one side or flatten and partially imbed it, as occurred in the case I report. The rest originate in the subperitoneal fat, for the most part near the origin of the mesenteric folds, and in growing separate the folds and come to lie below the intestine, which stretches across it. Thus practically all of these tumors will have a loop of the intestine running over them; the perirenal growths, either the ascending or descending colon, and the mesenteric, either colon or small intestine, according to origin. Omental or ligamentous fatty tumors are not included.

### ETIOLOGY.

Of this nothing is known. They are about 30 per cent. more common in women than in men, and the large majority occur between the ages of 30 and 60.

### SYMPTOMS.

These are particularly striking by their absence in many cases. It is really remarkable how such an enormous growth can take place in the immediate neighborhood of so many important organs and remain almost unnoticed by the patient. The first symptoms are usually of a dragging sense of fullness, not often amounting to actual pain. This may be associated with slight gastric irritability, not usually inducing actual vomiting until a late stage.

Gradually the effects of pressure become more and more pronounced, the gastric symptoms may increase in severity, as in Madelung's[11] case, and may produce marked emaciation. Obstruction to the veins may induce edema or a compensatory circulation. Obstruction to the intestines, as in one of Roux's[12] cases, may produce recurrent attacks of vomiting and colic, or chronic constipation, flatulence and gurgling. Pressure on the diaphragm causes dyspnea, and the hepatic or common duct may be occluded with the production of jaundice. Albuminuria, although present in my case, has been but seldom found. Still later, pressure on the lumbar plexus may cause pain down one or both legs. There is usually no tenderness.

### DIAGNOSIS.

This has been but rarely made previous to operation or autopsy. The frequent mistake is through diagnosing cyst from the semifluctuant sensation imparted by the fat. So definite may be this impression that the diagnosis of cyst has been persisted in even after several negative aspirations. A dry puncture into a fluctuating tumor should always suggest lipoma. Mesenteric cysts are to be distinguished by Augagneur's triad of symptoms: great mobility, situation in middle line, and zone of tympany in front. Echinococcus cysts move with inspiration, may give the so-called "hydatid thrill" of Briançon, and have dullness continuous with that of the liver, which is increased above.

Ovarian cyst should be determined by vaginal palpation of the appendages, and are uniformly dull on percussion anteriorly.

Ascites should not often enter the possible diagnoses of these cases, though the mistake has been made.

Hydronephrosis or pyonephrosis usually shows marked tenderness, presents urinary changes, and may be revealed by cystoscopic examination or ureteral catheterization. Distended gall bladder has no intestine anteriorly, descends on inspiration, has a suggestive history, is continuous with liver and is not felt in the flank.

Sarcoma is distinguished by more rapid growth and greater constitutional disturbances and by firmer consistence.

Retroperitoneal cysts would evidently make extremely difficult differential diagnosis. They are rare. Emmet,[13] in 1895, could only collect nine cases, including one of his own. According to Obalinski, they are probably of fetal origin, as remnants of the Wolffian or Müllerian ducts. They are in general more rounded and regular in outline; more movable and more tense.

A diagnosis of cyst of the pancreas may, as in my case, be strongly suggested from location.

### TREATMENT.

This is necessarily operative and, unfortunately, the procedure has usually become very dangerous by the time assistance is sought or interference consented to.

The dangers are threefold: 1, destroying the blood supply to the overlying length of intestine crossing the tumor, with resulting gangrene; 2, shock from operating for the necessary length of time in the exposed abdomen; 3, tearing the vena cava in separating it from the growth. In order to avoid the first danger, Adami advises operating through a lateral incision and accomplishing the removal from below the intestines and peritoneum. Though this is theoretically the ideal route,

Fig. 1.—Retroperitoneal fibrolipoma.

from my experience in this one case I should consider the attempt extremely hazardous. Even with exposure from above, I found it very difficult to clear the vena cava and secure other large vessels. This, I believe, would have been impossible by the lateral route.

Vander Veer[14] advises incision in linea semilunaris, and suggests separating peritoneum from internal border of tumor and then attaching it to the internal border of the abdominal wound, so making the field extraperitoneal. This scheme, which is so valuable in prolonged gynecologic operations, such as the complete operation for cancer of the cervix, as advised by Sampson, would scarcely be applicable in the case of a large mass nearly filling the abdomen, and in earlier cases the ease with which they peel out would scarcely justify the time necessarily consumed by such a procedure.

A median incision probably gives the best exposure and light, and greater ease in manipulation. After packing off the intestine as much as possible to the side, the peritoneum covering the growth is then divided and reflected, great care being taken to preserve the mesenteric blood supply and to injure the peritoneum as little as possible. No general rule can be laid down for proceeding after the tumor is reached, as the method of removal in each case will depend entirely on the extent and location of the growth and the organs involved. If the

11. Madelung: Berlin. klin. Woch., 1881, 75-93.
12. Roux: Semaine Méd., 1893, p. 159.
13. Emmet: Retro-per. Cysts, Tr. Am. Gyn. Soc., Philadelphia, 1895, xx, 479-493.
14. Vander Veer: Retro-periton. Tumors, Tr. Am. Surg. Assn., Philadelphia, 1891, ix, 375-391.

mesenteric attachment and blood supply of the crossing loop of intestine be destroyed, immediate resection is the only course left to prevent gangrene. This has been the most frequent cause of fatal termination. Great care has to be exercised in freeing the vena cava. If the kidney and ureter are embraced in the growth, they are removed with the tumor, after ligating vessels and the ureter, and after positive recognition of the presence of a second and normal kidney.

After complete removal the large cavity had best be drained through the flank, and the posterior peritoneum then united over it, rendering the artificial cavity and drainage extraperitoneal and restoring the abdomen *in toto*.

The successful operators so far are as follows: Fritsch, Küstner, Ohlshausen, Alsberg,[15] Buckner,[16] Bruntzel,[17] Belkowsky,[18] Lundin,[19] Hedborn, Lauwers,[20] Madelung,[11] Monad,[21] Pean[22], Pernice[23] and Roux.[12] Alsberg[15] removed seven inches of transverse colon; Madelung, eight inches small intestine; Lundin, eight inches transverse colon, and Roux, four feet of small intestine. Usually there is no evidence of inflammation, the peritoneum is smooth and clean, and the tumor peels out with comparative ease.

My specimen, which belongs to the perirenal variety of retroperitoneal lipomata, was successfully removed in one and a half hours. I report it in full.

*Patient.*—White woman, unmarried, age 35; was admitted to the Memorial Hospital April 7, 1904, complaining of indefinite dragging pains in abdomen and of being "run down."

*Family History.*—Negative as to similar affection.

*Personal History.*—Always very healthy; usual diseases of childhood; had typhoid fever twelve years ago. No pneumonia, malaria nor acute articular rheumatism. Appetite good; bowels constipated; six years ago, discharge from right ear which continued for two years. Menses began at 14, always regular; severe dysmenorrhea throughout flow. Has not menstruated for two months. Occasional slight leucorrheal discharge. Urinary findings negative; no blood, no pus, no pain, no increased frequency of micturition previous to present illness. Her normal weight is 164 pounds.

*Present Illness.*—For at least two years she has had more or less "indigestion," with occasional attacks of vomiting, at first accompanied with nausea. During this time there was no pain. Eleven months ago a fullness or tumor was noticed in upper portion of abdomen, and symptoms gradually increased in severity with the growth of the tumor. Some nausea and aching pain were experienced, most marked after eating, and the vomiting attacks became more frequent, especially at night. Considerable flatulence with gurgling and eructation was experienced. Decided loss in weight was apparent and has amounted to forty pounds in past eleven months. A dry, irritating cough has troubled her for some months and night sweats have been constant for past two months. For the past few weeks there has been dyspnea on slight exertion and considerable general weakness, also frequency of micturition and some dyspnea. Constipation is more pronounced. Stools, normal color. No jaundice. No edema.

*Physical Examination.*—Patient looked weak and poorly nourished. Lips and mucous membrane pale, tongue coated. Pulse 100 to a minute; regular in force and rhythm.

Thorax: Expanded fairly well and equally. Percussion resonant throughout. Breath sounds clear except an occasional moist râle behind.

Heart: Apex in fourth interspace, just inside nipple line. Area of cardiac dullness not increased. Sounds clear. Second aortic slightly accentuated.

Abdomen: On inspection a prominence was noticeable in upper portion of abdomen, rather to right side. This apparently did not descend on deep inspiration. Umbilical fold was almost obliterated. Liver dullness began above at lower border of fifth rib in front and three fingers' breadth below angle of scapula behind. Below, liver dullness was continuous with that of the tumor, which everywhere presented absolute flatness.

The edge of the liver could be made out distinct from tumor, one finger's breadth below costal origin and was felt to descend on inspiration in contrast to underlying fixed tumor. The mass was felt to occupy practically the whole right side of the abdomen from just below the ensiform cartilage to the pelvic margin. The outline was smooth and presented evidence of at least two lobules. Pressure in the flank gave decided forward impulse to mass. The consistence of the tumor imparted an indefinite though suggestive sense of fluctuation. Per vaginam the tumor could be felt extending over rim of pelvis. The pelvic organs were apparently normal.

Urine: Clear, yellow, specific gravity 1,020. Trace of albumin, no sugar, no casts.

Blood Examination: On admission, leucocytes, 10,400; red blood corpuscles, 4,000,000; hemoglobin, 37 per cent. By morning of operation hemoglobin had risen to 49 per cent.

*Operation.*—Anesthesia, nitrous oxid, ether sequence. Median incision from ensiform cartilage to symphysis. On retracting the abdominal walls the enormous mass was seen to fill the entire right side, extending up under diaphragm and below pelvic brim, and by its elongated, somewhat crescentic shape, suggested a gigantic kidney. All the intestines, including the ascending and transverse colon, were crowded beyond the median line into the left side, thus accounting for the uninterrupted flatness on percussion. After carefully walling off the intestine into the left half of the abdomen with gauze, the peritoneum was divided along the whole length of the tumor and reflected, first on the left side, then on the right. No difficulty was experienced, as the membrane was smooth and stripped off easily. This now exposed the kidney lying flattened in front of the tumor and half buried in it.

The substance of the mass was seen to be quite similar to ordinary perirenal fat. As it was deemed impossible to save the kidney the ureter was followed to the bladder and then ligated and divided and the renal vessels then similarly disposed of.

The enucleation of the mass with the kidney was then begun. In order to facilitate the procedure it was necessary to divide the mass horizontally above the kidney and the two portions were removed separately. In greater part the tumor came away without trouble, though now and then a portion would be bound down by firm adhesions. The most painstaking dissection was necessary to free the vena cava, which was completely buried in the mass, from its bifurcation to its exit in the diaphragm. The upper portion was traced to the head of the pancreas, to which organ it seemed attached. The liver, gall bladder with ducts and spleen, were normal.

The enucleation left an enormous cavity and an anatomic dissection of the abdominal vessels. An incision was made in the flank, through which a gauze strip drained the cavity posteriorly; the posterior fold of peritoneum was then closed over the drain, restoring the abdominal cavity entire. The peritoneum was closed with continuous catgut suture and the abdominal walls closed with interrupted through-and-through silkworm suture. The operation, which was well borne, lasted one and a half hours.

The drain was removed on the sixth day and an uneventful afebrile convalescence was completed by discharge from the hospital on the thirty-second day after operation.

On the third day after operation the leucocytes were 6,900; red blood cells, 3,800,000; hemoglobin, 50 per cent.

15. Alsberg: Deutsche med. Woch., 1887, p. 994.
16. Buckner: Amer. Jour. of Med. Sci., xxiv, 1852, p. 358.
17. Bruntzel: Berlin. klin. Woch., Dec. 4, 1892, p. 49.
18. Belkowsky: Rev. Med. de la Luiak, Romande, 1893, p. 451.
19. Lundin and Hedborn: Upsala Lakare Forenings for Hand'l, xxx, 1895, No. 2.
20. Lauwers: Bul. de l'Acad. de Med., Belge, 1891, p. 311.
21. Monod: Revue de Chirurg., xii, 1892, p. 1047.
22. Pean: Bul. de Therap., Nov. 15, 1885, p. 420; Aug. des Hospit., No. 38, 1856.
23. Pernice: Deutsche med. Woch., 1884, p. 850.

Albumin could not be detected in the urine after the fourth day. The pulse, which averaged 88 to 100 before operation, varied afterwards between 64 and 80.

For the following pathologic report I am indebted to Dr. Eugene Opie, of the Johns Hopkins Hospital.

*Macroscopic Examination.*—The specimen forms an immense tumor mass, divided into several parts. The largest mass is of great size, measuring 31.5x17.5x19 cm., and weighing 3,920 gm. It has a smooth, lobulated surface and exhibits no evidence of having invaded any adjacent structure. It is covered over about one-third of its surface by a smooth membrane, doubtless the peritoneum, which can be readily removed. Examination demonstrates that the entire mass is made of large rounded lobules, varying much in size and shape, the larger being 10 to 15 cm. across. Such lobules are in large part separated by loose areolar tissue, which is readily broken, thus isolating masses which remain attached to one another only by a small basal part. The surface of these lobules is smooth except for the presence of rounded indentations here and there. The substance of the tumor varies much in consistence, being everywhere firm, but in some places hard and tough. The color is in some parts bright yellow and resembles ordinary fat, save that it has a grayish tint and is far firmer in consistence. Those parts of the tumor which are firmest in consistence have a gray color, and on section one sees a distinctly fibrillated appearance, striations of gray color alternating with tissue of translucent appearance. Such tissue though tough is very elastic; it is of gray fibrous appearance and contains poorly defined areas of variable size where the bright translucent yellow appearance of fat is marked. One kidney, which is apparently normal, is attached by its ureter to the peritoneum covering the tumor.

A second mass (measuring 23.5x10x12 cm., and weighing 990 gm.) is wholly composed of dense bright yellow tissue resembling fat, but is of somewhat grayish tint, and is far harder in consistence than normal fat. A very small part of this mass has the tough, fibrous character above described. An adrenal gland, which appears normal, is attached to the mass.

In addition to the above are three smaller masses, weighing together 595 gm., the largest, measuring 12.6x10x6.8 cm., represents an isolated lobule of the tumor. It is irregularly oval in shape and has a smooth surface with occasional rounded indentations. On section this tissue has a dense fibrous appearance save for small areas, about 0.5 cm. across, having the color and consistence of fat. To a smoother small mass of fat-like tumor tissue is adherent adrenal tissue. There is no appearance of invasion and cortical and medullary substances are definable.

*Microscopic Examination.*—Sections for microscopic examination were made from various parts of the tumor. The tumor substance consists of two kinds of tissue combined, in correspondence with the varying character of the gross appearance in varying amounts. In places it consists almost wholly of ordinary fat cells and resembles fat except that the lobulation is much more irregular than is usual. In other sections, corresponding to those parts in which the tumor substance is toughest, a fibrillated tissue containing many cells is present. In most parts of the tumor both fibrous and adipose tissues occur side by side, numerous fat cells being situated in a fibrous stroma.

This fibrous tissue is loose in texture, containing delicate bands of white fibers together with fluid material which separates both cells and fibers and gives the tissue an edematous appearance. Cells of several types are numerous. Fibroblasts are abundant. Lymphoid cells often form collections of considerable size and nearby are plasma cells. Very numerous are somewhat larger cells with abundant protoplasm and a round or oval nucleus. These cells contain vacuoles in varying number; at times a single vacuole displaces the nucleus. Such cells, which pass by transitions into fully formed fat cells, represent the latter in process of multiplication. In addition to the above, varying much in number in different parts, occur very large multi-nucleated cells—giant cells. They are usually irregular in shape, at times round or oval, at times spindle shaped. Six or more nuclei may be present in a cell. Often, however, separation of nuclei is incomplete, so that the appearance of a budding nucleus is produced. At times transitional forms suggest that these giant cells are derived from young fat cells.

The tumor is a fibrolipoma doubtless arising from the retroperitoneal tissue. Though it has reached an immense size, it must be regarded as a benign tumor, there being no tendency to invade adjacent structures.

APPENDIX (October, 1904): By one of the strange coincidences which are so frequently met in dealing with medical anomalies, I was called on to treat a second case of retroperitoneal fibrolipoma two months after the one described above. This second case is probably one of mesenteric origin, illustrating the other of the two classes into which Adami divides retroperitoneal lipomas.

The patient, a white woman, aged 47, married. Previous family history negative.

*History.*—The swelling was first noticed in the right side of the abdomen about six years ago. It continued to increase gradually until the period of admission to the hospital. Until within the past twelve months there was but slight pain, and that of a dragging character, in the upper right side. During the past two years the growth has been more rapid, and within the past twelve months there has been considerable inconvenience from the size of the tumor, much sharp pain, frequent vomiting and labored breathing.

*Examination.*—Physical examination shows an enormously distended abdomen which, extending above, gives a somewhat barrel shape to the thorax. The superficial veins of the abdomen are greatly extended; percussion note over the tumor is flat. The general character and semifluctuation sensation imparted by the tumor suggested an ovarian cyst as the most probable diagnosis.

*Operation.*—At operation the tumor weighed 28½ pounds, and was successfully removed through a median incision extending from the ensiform cartilage to the pubis. On opening the abdomen the tumor presented, covered with many adhesions and firmly fixed to the posterior pelvic and the abdominal walls, particularly on the right side. A trocar inserted deeply failed to bring fluid. The tumor lay behind the peritoneum, apparently having its origin under the right broad ligament. Peritoneal flaps were reflected, vessels being clamped as met. The tumor was finally peeled out by blunt dissection and removed *in toto*. The patient did well for forty-eight hours, and then developed symptoms of extreme exhaustion, with atony and obstruction of the bowels. She sank rapidly and died on the third day.

*Autopsy.*—The following is a pathologic report by Dr. Jos. C. Bloodgood of the Johns Hopkins Hospital:

Diagnosis: Retroperitoneal; angio-fibro-lipoma.

Gross pathology: The tumor is fairly well encapsulated and lobulated. It measures 29x20x12 cm. Weight, 9,850 gr. (about 14 pounds). The tumor has a distinct capsule, and when separated from the tumor we find between the capsule and the tissue beneath a loose "cobweb" connective tissue. The tumor is composed grossly of three distinct parts. There is a large encapsulated fibroma, surrounded by a zone of fat. At one place it has the appearance of an ordinary lipoma, in which the connective tissue stroma in places has increased. The tissue in one place is characterized chiefly by hollow spaces suggesting venous blood canals. In places this tissue is blood stained. The tissue between the blood spaces has not a distinct white fibrous appearance nor a yellow fat appearance, but looks like very condensed adipose tissue with a good deal of connective tissue stroma. The central zone of the tumor is a mixture of the three areas just described. The gross appearance of the tumor, therefore, suggests the diagnosis—angio-fibro-lipoma.

*Microscopic Study.*—Naked eye appearance typical of fibroma. The tissue is composed of dense fibrous tissue taking the eosin stain. Very few nuclei taking the hematoxylin stain

are seen. There are quite a number of spaces; these spaces have no distinct wall and contain no blood. Special stain not made. Typical adipose tissue, considerable increase of the connective tissue stroma. Each space has apparently a distinct lining like the intima of a vein. The tissue between is composed of fat and very cellular connective tissue. Unfortunately, the original preparation of the huge tumor was incomplete, and the cells take the stain so poorly that it is quite impossible to study in detail their morphology and arrangement. In the smaller spaces there is a suggestion of blood corpuscles. The connective tissue about the blood vessels is far in excess of the adipose tissue, and so far as one can make out resembles a fibro-spindle-celled fibroma—the so-called cellular fibroma. In the sections studied I can see no evidence of epithelial tissue or any suggestion of kidney tissue, nor is there anything in the last section to indicate the possibility of an adrenal; nor is there anything in this section to suggest the possibility of a sarcoma.

## THE FAMILY PHYSICIAN

### AS A FACTOR IN THE SOLUTION OF THE TUBERCULOSIS PROBLEM.*

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NEW YORK.

In choosing this subject as a contribution to the Section on Practice of Medicine of our great Association, I have borne in mind that this Section is composed mainly of general practitioners; that is to say, family physicians. Before outlining what can and should be done by the family physician as a factor in the solution of the tuberculosis problem, you will permit me to give you my conception of what the family physician should be and what he should represent in a civilized country and in this enlightened century.

Of late there has been in the minds of the laity and even among the profession a tendency to depreciate the value and the standing of the general practitioner. In the profession this tendency has been particularly pronounced among its younger members; the result is that the number of family physicians relative to the number of specialists and also relative to the number of population has materially decreased. In an address which I delivered a few years ago before the American Academy of Medicine on the subject, "The Family Physician of the Past, Present and Future," I endeavored to explain the reasons for this decrease in number of family practitioners and the decrease in the esteem in which so important a position is held by the community. Permit me to quote from my address what I then said concerning the causes of this situation: No individuals, no one class of persons, but rather scientific events and our present social conditions are responsible for the scarcity of family physicians, and the disinclination of many even well-to-do families to attach to themselves a general practitioner in this capacity. The discoveries of bacteriology and the advances in sanitary science, the wonderful strides made in surgery, the multiplication of specialties, and last, but not least, the multiplicity of different systems of medicine, such as homeopathy, eclecticism, etc., not to mention Christian scientists, faith-curists, osteopaths, somopaths, and other paths, are responsible for the passing away of the older type of family physicians.

The family physician of the present is rarely held in just esteem. In some families he is called in simply to decide what specialist should be consulted; in others he is allowed to attend to minor ailments, while in serious cases the specialist is often called in without the family physician being consulted. Again, individual members of one family often manifest a preference for this or that system of medicine. Having myself had for a preceptor one of that old type of physicians who could not bear the idea that there should be any but the one regular school of medicine, and to whom the designation allopath was as distasteful as homeopath, I had imbibed his dislike, his distrust and his disdain for any system of medicine but the regular. Shortly after graduation I was fortunate enough to become the physician to a well-to-do and cultured family. I had been successful in attending the head of the family, and I flattered myself to have gained thereby the confidence of all the members. Soon, however, I found out that I was never called in when any of the children were sick. I endeavored to comfort myself with the belief that it was probably my youth which was the cause, and that these good people did not care to trust the precious lives of their children to so young a physician. A subsequent event, however, taught me that it was not discrimination against me, but rather discrimination against the school of medicine in which I had been reared and to which I was so proud to belong. One day I met a homeopathic physician coming out of the house of this family, and later I received the explanation from the father which was to the effect that his wife would never allow her children to be treated by any physician not belonging to the homeopathic school. My idealistic conception of a family physician received a severe shock, and since then it has received a good many more. I know now of a family where the husband goes to a physician of the regular school, the wife to an osteopath, the two daughters to a homeopathic lady physician, and the mother-in-law to a Christian scientist.

Such is the status of the family physician to-day, and such the situation as it has confronted many a young practitioner and confronts many a middle-aged and old family practitioner to-day. Yet if we could only impress on the community at large, and more particularly its intelligent members, the great importance of having a family physician, his position would again rise to that height and esteem which it enjoyed of yore. Again, could the family only be made to understand how much sickness, suffering and sorrow might be avoided by having a family physician who visits and watches over those entrusted to his care, whether there is any member of the family ill or not, the people would soon learn that it is just as much and even more in the power of the family physician to save lives by the prevention of disease than it is by heroic surgical operations.

Coming nearer to our subject, "The family physician as a factor in the solution of the tuberculosis problem," I will point out the invaluable services which the family physician can render as a teacher, hygienist and prophylactiker—if you will pardon the German expression. Pulmonary tuberculosis, discovered early and treated early, has from 60 to 75 per cent. of chances of cure; the later the disease is discovered the fewer are the chances of cure, and the more is there a likelihood

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of a chronic invalidism with a fatal termination after a few years of suffering and loss of earning capacity. If the sufferer is the head and breadwinner of the family, the suffering is often not confined to the invalid alone, and privation and discomfort follow in the train of this chronic and costly disease, and thus it affects the other members of the family.

Let it be once understood that it is not only in the interest of the physical, moral and mental welfare of a family to have a conscientious physician for its regular visitor and guide, but that there must inevitably follow a financial and economic gain by such a procedure, and the family physician will become an indispensable personage of every well-to-do household.

The family physician should not only be indispensable in the families of the rich and well-to-do, but he should be the same to the families of the poor. The municipality which will inaugurate such true and practical philanthropy as to assign a competent physician as family practitioner to a number of families not able to pay for one, will be the ideal municipality of the future. In a few years it will be able to prove that it is cheaper to prevent disease than to treat it.

The tuberculosis problem, in which I have been interested for a number of years, has taught me many things which are applicable to general medicine, to the duties and vocation of the family physician, and to the solution of the social position of the general practitioner of to-day. The one positive conclusion I have arrived at, through what I believe to be an earnest, unbiased and careful study of the subject, is that the tuberculosis problem will and can never be solved without the help of the family practitioner, and that consumption as a disease of the masses will never be successfully combated until the day in which every family has its family physician. No matter how strict the sanitary regulations which boards of health may issue, no matter how many sanatoria and special hospitals for the consumptive poor we may have, we must look to the family physician for the bulk of the work in fighting the "great white plague," or to use the graphic expression of that master of masters in medicine, Professor Osler of Baltimore: "In the warfare against tuberculosis the man behind the gun is the general practitioner; the battle can not be won unless he takes an active, aggressive and accurate part."

We must look to the family physician for the discovery of the early and curable cases. The stooping shoulders, the badly developed or deformed chest, the pale appearance, the slightly hacking cough, a marked irritability, a loss in weight, a lack of appetite, the glistening eye, pasty skin, the bright color of the cheeks, a frequent rise of temperature in the afternoon, a dislike to pleasures or to duties which were formerly easy to perform, should put the family practitioner on his guard, and indicate that the individual having these attributes, signs and symptoms is a subject for a most careful physical examination.

The bacteriologic examination in individuals with such early symptoms, even if repeatedly made, is but rarely positive, for there is not enough disintegration to show the presence of the bacilli. A careful examination will be helpful, and in this history should include the possible inheritance of a predisposition. The determination whether the suspected patient is the first, second, seventh, eighth or ninth born, and in the latter case the often hereditary physiologic poverty; the possible sources of infection, the contact with consumptive individuals, all should be taken into consideration. The physical signs of early pulmonary tuberculosis, such as voice fremitus transmitted along the affected side, which is often observed as a subjective symptom by the patient himself and brought in evidence by a humming sound, dullness on percussion, decreased respiratory murmur, rough breathing, râles of small magnitude, a blowing sound in the subclavical or pulmonary artery, bronchial breathing, all these are symptoms too well known to need to be dwelled on longer. When these symptoms are found, in part or all, one can be reasonably certain that he is in the presence of a beginning pulmonary consumption. The fluoroscope will often confirm what the ear has discovered. I can not discuss here the question whether or not the tuberculin test is justified; as for myself I am willing to be placed on record as disapproving its use categorically. In the presence of a case where the careful bacteriologic and physical examination and the *x*-ray leave me in doubt, I would treat the suspected case dietetically and hygienically for a few weeks; in other words, would treat him as if he were an early case. I am sure that I would never do any harm by pursuing this method, and I am not sure I would not do harm if I injected tuberculin. It is here that the family practitioner can do the greatest good. Whether the case is suspected or confirmed, we must look to him for the carrying out of the sanitary regulations; without him, for rich and poor, and particularly for the poor, there will be a constant supply of new tuberculosis cases, created daily in the insanitary tenements of the poor.

What has been said of tuberculosis is certainly applicable to nearly all other diseases. Most ailments increase in severity where nothing is done to check their progress. Many diseases have their etiology in ignorance, and here again you will have to pardon me if I use for illustration that most characteristic disease of the masses, namely, tuberculosis. Malnutrition of the poor we are apt to attribute to want of food. Those of us, however, who have some experience in the tenement-house life of large cities will know that there is relatively more waste of food substances in the houses of the poor than in the houses of the well-to-do. It is often nothing but ignorance on the part of the willing but untrained housewife of the laborer which makes his food expensive but not nutritious. The poor girl from the shop or factory, when she marries, does not know the art of choosing the right food and preparing it appetizingly and tastefully. The result is often not only malnutrition of husband, wife and children, but alas! also discontent, love for stimulating liquors, crime and disease. In a wealthy family, if a child or grown person grows thin in spite of plenty of food, the family physician would be consulted, and not infrequently would discover the cause of malnutrition to be the fact that the food given to the patient was not the proper kind, and with a change in the right direction the patient would improve. The poor alone have no one to turn to for advice; they only go to the dispensary when really sick; they have not time nor are they observant enough to discover slight ailments, such as an impaired digestion and lack of assimilation, conditions which are the true forerunners of consumption and other grave diseases. Again, those familiar with the life of the ordinary workingman will know how he and his family often shrink from the thought of entering a hospital. These men will make all possible sacrifices in order to keep the sick member of the family at home and provide such medical attendance for him as they are able to procure. But timely and regular attendance is rather

the exception than the rule among poor families where there is a consumptive or any other kind of invalid. These poor people will first try all kinds of quack remedies, and ask their druggist for advice, or, attracted by some glaring advertisement of a sure cure, fall into the hands of some unscrupulous charlatan.

Think of the world of good the family physician can do to the family of the honest laboring man by preventing these people from falling into the hands of the numerous quack concerns which thrive on the ignorance of the poor. If the money could be counted which is annually spent for patent medicine by the average family of working people, the sum would be larger than would be necessary to pay a reasonable honorarium for a family physician and the little medicine which he would probably think necessary to prescribe. The family physician to the honest toilers would prevent so much disease and save to the members of families who might be breadwinners so many days of idleness, that they would be financial gainers in the end.

The monetary loss coming to a family from the use of patent medicines is trifling when compared with the serious results this senseless self-drugging leads to. Let me give you a few instances: A certain malt whiskey, not exactly advertised as a patent medicine, but brought before the public in glaring advertisements, and in some instances with the picture of a venerable clergyman endorsing the use of this "medicine," is recommended as a well-nigh infallible remedy in consumption. As medical men, we all know that while whiskey may be useful in a few rare instances as a temporay adjuvant in the dietetic or symptomatic treatment of tuberculosis, it never replaces food, and when taken continuously will almost invariably result disastrously. The alcoholic drink referred to is the so-called "Duffy's malt whiskey." While the claims of the manufacturers and its endorsers that "it cures coughs, colds, most forms of grip, consumption, bronchitis, pneumonia, catarrhs, dyspepsia, and all kinds of stomach troubles," and that "it never fails to build up a worn-out system, to soothe the tired nerves, to bring perfect health to the whole being," must awaken surprise if not suspicion in every person of average intelligence, this product has at least the merit of being in the market under its proper name. Far more dangerous are some of the products known as patent medicines, which are swallowed by the gallon by the public as innocent remedies, and not only by men, but also by women and children. From personal experience I know that many of these drugs, containing as much as 40 per cent. of alcohol, are taken in teaspoonful and tablespoonful doses from three to six times a day by persons who are avowed temperance people and strongly opposed to taking intoxicating liquors in the ordinary form.

Permit me to give you here a little array of these widely advertised medicines, patent medicines, nerve tonics, bitters, etc., and state at the same time the percentage of alcohol that each contains, as ascertained by an investigation made by order of the State Board of Health of Massachusetts. I have arranged this list according to the percentage of alcohol (by volume). The original compilation appeared in the report on Food and Drug Inspection for the year ending Sept. 30, 1902, kindly sent to me by Dr. S. W. Abbott, the secretary of the board:

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|---|---|
| Hoff's Extract of Malt and Iron | 5.24 |
| Copp's White Mountain Bitters, "not an alcoholic beverage" | 6.00 |
| Pierce's Indian Restorative Bitters | 6.10 |
| Warner's Vinegar Bitters, "contains no spirit" | 6.10 |
| Hop Tonic | 7.00 |
| "Best Tonic" | 7.60 |
| Dr. Kilmer's Swamp Root | 7.32 |
| Radway's Resolvent | 7.90 |
| Corbett's Shaker Sarsaparilla | 8.80 |
| Tharston's Old Continental Bitters | 11.40 |
| Hop Bitters | 12.00 |
| Secor's Cinchona Bitters | 13.10 |
| Howe's Arabian Tonic, "not a rum drink" | 13.20 |
| Allen's Sarsaparilla | 13.50 |
| Brown's Sarsaparilla | 13.50 |
| Dana's Sarsaparilla | 13.50 |
| Wheat Bitters | 13.60 |
| Dr. Peter's Kuriko | 14.00 |
| Kingsley's Iron Tonic | 14.90 |
| Pulmonine | 16.00 |
| Goodhue's Bitters | 16.10 |
| Baxter's Mandrake Bitters | 16.50 |
| Mensman's Peptonized Beef Tonic | 16.50 |
| Moses Atwood's Jaundice Bitters | 17.10 |
| Greene's Nervura | 17.20 |
| Carter's Scotch Bitters | 17.60 |
| Langley's Bitters | 18.10 |
| Dr. William's Vegetable Jaundice Bitters | 18.50 |
| Hood's Sarsaparilla | 18.80 |
| Wheeler's Tonic Sherry Wine Bitters | 18.80 |
| Vinol, Wine of Cod Liver Oil | 18.88 |
| Schenck's Seaweed Tonic, "entirely harmless" | 19.50 |
| Jackson's Golden Seal Tonic | 19.60 |
| Brown's Iron Bitters | 19.70 |
| Faith Whitcomb's Nerve Bitters | 20.30 |
| Kaufman's Sulphur Bitters, "contains no alcohol" (as a matter of fact it contains 20.50 per cent. of alcohol and no sulphur) | 20.50 |
| Lydia Pinkham's Vegetable Compound | 20.61 |
| Hooker's Wigwam Tonic | 20.70 |
| Paine's Celery Compound | 21.00 |
| Flint's Quaker Bitters | 21.40 |
| Shonyo's German Bitters | 21.50 |
| Thayer's Compound Extract of Sarsaparilla | 21.50 |
| Warren's Bilious Bitters | 21.50 |
| Carter's Physical Extract | 22.00 |
| Puritana | 22.00 |
| Hartshorn's Bitters | 22.20 |
| L. T. Atwood's Jaundice Bitters | 22.30 |
| Liverpool's Mexican Tonic Bitters | 22.40 |
| Liebig Company's Coca Beef Tonic | 23.20 |
| Burdock Blood Bitters | 25.20 |
| Hoofland's German Bitters, "entirely vegetable and free from alcoholic stimulant" | 25.60 |
| Ayer's Sarsaparilla | 26.20 |
| Colden's Liquid Beef Tonic, "recommended for treatment of alcohol habit" | 26.50 |
| Colton's Bitters | 27.10 |
| Z. Porter's Stomach Bitters | 27.90 |
| Whiskol, "a non-intoxicating stimulant, whiskey without its sting" | 28.20 |
| Peruna | 28.59 |
| Job Sweet's Strengthening Bitters | 29.00 |
| Atwood's Quinin Tonic Bitters | 29.20 |
| Hoofland's German Tonic | 29.30 |
| Drake's Plantation Bitters | 33.20 |
| Rush's Bitters | 35.00 |
| Warner's Safe Tonic Bitters | 35.70 |
| Parker's Tonic, "purely vegetable," recommended for inebriates | 41.60 |
| Boker's Stomach Bitters | 42.06 |
| Hostetter's Stomach Bitters | 44.30 |
| Richardson's Concentrated Sherry Wine Bitters | 47.50 |

The dose recommended on the labels of the foregoing preparations varied from a teaspoonful to a wineglassful, and the frequency also varied from one to four times a day, "increased as needed."

I often wonder if some of our distinguished statesmen, clergymen and otherwise highly intelligent citizens, who are in the habit of giving their endorsement to such remedies, have ever thought of the fearful responsibility they incur when recommending a remedy, the composition of which is as foreign to them as the chemical formula of phenyl-dimethyl-iso-pyrasolene (antipyrin). Many of the above enumerated remedies I have seen used by consumptives who, as we all know, are so very apt to ascribe their sufferings to stomach or nervous derangements, and eagerly try any thing which they imagine will give them temporary relief. In such cases it is the strong mind and the authority of the family practitioner who alone can stop the pernicious habit of self-drugging.

I know from experience in my own practice how the continued use of even a mild cocain solution will make cocain fiends. A typical case was recently related to me by a friend, the proprietor of a leading journal. It shows the danger in the advertised local catarrhal remedies, containing as active principle the hydrochlorate of cocain. A young boy in my friend's office was advised by his own father, an employe of the same paper, to use

a certain widely advertised sure cure for his nasal catarrh. The directions given for the use of this remedy were to apply it by the aid of a spray to the mucous membrane of the nose. When the father thought the boy had used the costly remedy long enough the boy had already become addicted to the use of cocain. Since the father no longer bought the remedy and the young man's means did not suffice to pay for the costly drug, the boy became a thief. When finally caught and taken into the private office by his employer, a complete confession revealed the cause of his downfall. The "sure-cure" remedy for his slight nasal catarrh had made him a cocain fiend, and as it is with all habitués of this kind, his moral and ethical conception had decreased in the ratio of the increase of the craving for the drug. Fortunately for the boy, the father handed him over to a conscientious physician, under whose close observation a complete recovery resulted. Yet we all know that only the smaller number of cases of men and women addicted to alcohol, cocain, morphin or chloral, acquired by the continued use of these drugs, pure or in the guise of patent medicines, have such a fortunate ending as the case just quoted. I endorse most heartily what Mr. Bok has to say in this respect in a recent issue of the *Ladies' Home Journal:* "It is not by any means putting the matter too strongly to say that the patent-medicine habit is one of the gravest curses, with the most dangerous results, that is inflicted on our American national life."

Of the incalculable harm which the many advertised absolutely sure consumptive cures do among the poor and ignorant sufferers from pulmonary tuberculosis, I could tell you heartrending stories. The so-called Koch concern, for example, the dealers in "Kochine" or in "inhalation tuberculin," will ask the poor sufferer, under promise of cure, to pay a certain sum in advance. He will, of course, not receive any benefit from the treatment, but on re-examination by the "professor" he is assured that his lungs are better and the result is another advance payment; and this re-examination and finding the lungs better is continued until there is no more money. What happens then? The patient is told that in view of his improvement and for reasons of pity, the "professor" will continue the treatment without payment, but in lieu of this, the patient must sign a certificate saying that he has been thoroughly cured of his disease through the medicine of the "great and good professor," although two prominent physicians had pronounced his case to be a hopeless case of true consumption. Thus these concerns get their testimonials. They will shrink from nothing to beguile the public.

They have used, and still use, the name of that great scientist and benefactor, Prof. Robert Koch of Berlin, as though he were associated with them in their business and treatment. They advertise his picture beside that of an individual with a similar name, and head their advertisements with "Professor Robert Koch's Cure." While the medical profession at large is, of course, aware of this evident fraud, the public does not seem to be, and in order to be able officially to deny any such connection, I wrote some time ago to Prof. Robert Koch of Berlin, Germany. The professor's answer was a lengthy one and full of indignation, and I will give you only the substance of it. He says that the alleged "lung cure" of Dr. Edward Koch, or under whatever name this system of treatment may be presented to the American public, is a very base fraud, and that he, Geheimrath Prof. Dr. Robert Koch, has no relations whatever with Dr. Edward Koch, with any other individual who may be connected with this concern, nor with any of its methods of treatment; neither has he ever had any relations with the same. He hopes that an end will soon be put to the manipulations of these base and fraudulent concerns, and adds: "This is to be particularly desired in the interest of the many poor consumptives who have been deceived by the use of my (Prof. Robert Koch's) name in connection with the so-called "Koch's Consumption and Asthma Cure."

For reasons best known to themselves, even some of our best known and reputable newspapers continue to publish advertisements of the Koch's consumption cure concerns, and few are willing to lend a hand to the exposure of these frauds.

What a power of good could the family physician be in protecting poor ignorant consumptives from the fearful harm which is done to them through such dangerous charlatanism.

I desire to touch on one more point regarding the prevention of consumption. It is a delicate point, I confess, but I feel keenly on the subject, and have no hesitation in this audience of physicians to express my opinion frankly. The family physician, who should not only be the medical adviser but also the friend of the family, will be listened to more readily than any other person when there is a question of marriage to an individual of doubtful physical integrity; in other words, it is the family physician and friend more than any other person who will be able to prevent the marriage to a consumptive or between consumptives. If tuberculosis develops in husband or wife after marriage, it will be again the family physician's duty to point out to both that, although tuberculosis is not hereditary directly, there is a great likelihood that a strong predisposition may be transmitted from the consumptive parent. Such a couple should also be made to understand that pregnancy in a consumptive mother ameliorates her physical condition only temporarily, and after childbirth there is often noticed an exacerbation of the pulmonary trouble. Wherever there are consumptive parents I am willing to take the responsibility before the law and my Creator for advising them not to procreate the race.

A last word on the importance of the family physician and the valuable service he can render to the consumptive poor if he is fortunate enough to practice among the well-to-do. While much gratitude toward the physician is not invariably a virtue to be met with among the rich, it is not so infrequent as the pessimists in our ranks like to make it out. Some rich patients are truly grateful; they will not only pay the physician handsomely, but will make him their adviser and friend. The grateful, well-to-do patient will often ask his physician what institution, what hospital, what kind of patients most need the help of the philanthropist. What golden opportunity is here offered to the family physician to help toward the solution of the tuberculosis problem by telling his noble-hearted patient a little of the life of the tenement dwellers which he learned to know when, as a young physician, he practiced in those regions. No one better than he knows how to describe the suffering of the consumptive poor, lacking not only the ordinary comforts so essential to the successful hygienic and dietetic treatment of consumption, but often lacking the barest necessities. The family physician, more than any one else, can point out to his wealthy patient the surest and most direct path to relieve the woes of the needy and suffering, and if the physician is a true friend of him who wishes to leave his wealth so

as to be productive of the most good, he will show such a man that his money could not be better invested than in the creation of more sanatoria and special hospitals, seaside sanatoria for children, agricultural colonies, better tenements, more parks and playgrounds, all tending toward the solution of the tuberculosis problem.

16 West Ninety-fifth Street.

## PROBLEMS FOR THE TUBERCULOUS CONVALESCENT.*

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For many centuries, and, in fact, until the last decade, tuberculosis was generally believed to be an incurable disease. An unceasing warfare against the disease, however, has gradually added to our knowledge of its causes and nature until its terrors have been lessened, and its victims are no longer overshadowed by a prognosis destitute of hope.

The autopsy records of the great medical centers have furnished abundant evidence of pre-existing tuberculous lesions that had long since healed, or had assumed latent states, while death eventually resulted from other causes. A review of vital statistics shows a high and increasing percentage of recoveries.

These facts have established more hopeful views concerning tuberculosis, which cause it now to be recognized as one of the readily curable diseases.

Notwithstanding that year by year we are forming a clear conception of the influences which bring about the tuberculous state, and, on the other hand, that we have gained a clearer understanding of the necessary steps to overcome this condition when established, the mortality rate for tuberculosis continues higher than for any other disease known to humanity. To lessen this appalling mortality rate, efforts must be directed toward means of prevention as well as methods of cure. To diminish the number who become tuberculous is, indeed, an important phase of the tuberculosis problem, for tuberculosis is distinctly a preventable disease.

For the present, however, our attention will be directed especially to the problems pertaining to recovery. Granting that tuberculosis is a curable disease, it may be of interest to ascertain the cause, or causes, of the existing high death rate. Many important lessons may, therefore, be learned from a study of the mortality records of tuberculosis. A study of these records reveals the fact that a large percentage of mankind possesses by inheritance, or acquires from their mode of life and the nature of their environment, a type of weakened tissues which furnishes a fertile soil for the tubercle bacillus.

These persons offer little or no resistance to tubercle bacillus when it finds a lodging in the weakened tissues of such persons. As a result, these patients are, in a large measure, hopeless from the beginning of infection For such patients, treatment should have been prescribed for their ancestors many generations before, with a view of producing a progeny with stronger resisting power.

There remains, however, a large percentage of fatal cases that might have been cured or improved had conditions been more favorable during the course of the disease.

In considering the factors which are most potent in favoring recovery, an early diagnosis should rank first in importance. It is only recently that the significance of the early symptoms of tuberculosis have been correctly interpreted. Heretofore a slight cough, a loss of appetite, sleeplessness, loss of weight and strength, were interpreted as a mild but general impairment of health. Even to-day the significance of such a series of symptoms is often passed over by the laity without attracting special attention.

It is also a lamentable fact that many physicians have yet to learn the supreme significance of the early but insidious symptoms of a beginning tuberculosis. The gravity of the case, therefore, is too frequently overlooked until serious tissue loss has developed.

When these subtle but significant early warnings are not recognized, important opportunities for treatment are lost, and the possibility of arresting the disease is greatly diminished. Hence the responsibility for the lack of an early diagnosis should be traced to its legitimate source. The placing of responsibilities which involve such serious risks, and on which lives may rest, requires the consideration of questions of a domestic and sociologic nature that are by no means easy of solution. The existing social and domestic customs make it possible, under varying conditions, to place the responsibility of a neglected diagnosis on the patient, the family of the patient, the family physician, or the public.

It becomes extremely important, therefore, to place the responsibility of a recognition of the true nature of the trouble during the early stage of infection. Who is at fault if the patient fails to consult a physician for what he considers an insignificant or temporary trouble? Who is at fault if the general public is not informed concerning the importance of an early diagnosis? Who is responsible if the disease is not recognized until it has advanced beyond the stage when hope of recovery may be expected?

The subject resolves itself into a need for a general campaign of education with a view of impressing on the public the necessity of an early diagnosis, and on physicians themselves the necessity of greater skill in recognizing the long list of early symptoms which forms a picture that can scarcely be mistaken, if once thoroughly recognized. The ultimate responsibility for the accomplishment of these results rests with the public and devolves on the state to take the initiative.

It is an undeniable fact that many curable patients die. A failure to recover may be ascribed to two causes —a lack of effort or an irrational effort.

In the light of past experience it is my opinion that the problems presented to the tuberculous convalescent are equally important, and often more difficult of solution than those presented when the disease is first detected. After months and years of effort and expense, many patients fail to overcome the disease because of a lack of proper knowledge of a few fundamental laws of convalescence.

If it is permissible to use an analogy in the discussion of a medical subject, the struggle of a tuberculous patient may be likened to a nation defending its life or its honor. Similar questions are presented for solution, and identical conditions are to be met. War between nations and war against disease are often declared with little warning. When such occurs, the defenses are frequently found in a weak condition, the finances at low ebb, and the strongholds in a neglected state. The na-

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tion that fails to prepare for war in time of peace will be able to make but a feeble resistance when danger is threatened. An army sent to the front is certain of defeat unless plans for furnishing supplies have been carefully formulated. The inevitable result is well known if the line of communication is broken and the supplies cut off. Such a catastrophe means an indefinite siege, with indescribable deprivation and suffering. On the other hand, the equipment and supplies may be inexhaustible, and yet if the commanding officer lacks judgment he may lead his brave men into dangers that mean inevitable defeat.

Those who have observed the army of tuberculous patients who are traversing every highway and byway of this disease-infected globe, have witnessed object lessons not easily forgotten. Many a patient for a time makes a good fight, and for lack of conservative judgment or on account of overconfidence, what seemed to be a certain victory is turned to a sudden defeat. In warfare against disease, as in warfare between nations, the nature of the campaign should be well studied before rushing to meet the enemy. The course pursued should depend on the resources at hand. Good judgment and cunning strategy are essential.

Before a campaign is undertaken, an attempt should be made to estimate the approximate cost; every effort should be made to procure the necessary funds; the field for operation should be selected with a view of securing the most favorable conditions and the strongest defenses; the source and nature of the supplies should be well considered, and a commander chosen to direct the forces whose experience and judgment are above reproach. When these precautions are not taken, defeat is inevitable. How many tuberculous patients plan a campaign with skill and judgment? Too frequently they leave all judgment at home. They take with them a good supply of bravery, but few or no supplies; they frequently choose a battlefield with no natural defenses, and are often unskilled in proper methods of utilizing their available defenses. Frequently, with little or no knowledge of the strategy of their common foe, they attempt to command their own forces, and for some rash act of foolish bravery or lack of judgment what might have been a victory terminates in disappointment and defeat.

I recall the case of a young man of fine business training, recently employed as cashier of a large business concern in one of our eastern cities. From daily handling large amounts of infected currency, he himself became infected. His family was of moderate means and he its chief support. Each day that he continued to hold his lucrative position, after the nature of his disease had been determined, lessened his chances of recovery. To give up his position meant a heavy drain on his savings, as well as the cutting off of his only source of income. An important question was before him for definite decision. He tendered his resignation, and with his small savings sought a more favorable climate. An out-of-door life for one year found him well on the road to recovery. His trouble had been reduced to a quiescent state. His weight and strength had increased, and his old ambition began to develop. He began to long for the familiar scenes of home. On the other hand, his finances were exhausted. When he was really ill, he was brave. But he had almost won the battle, and he was brave no longer. He had arrived at a critical point. Another decision was required. He finally decided to return to his old home, against the advice of his physician and friends. He once more assumed his former duties, and once more was self-supporting. But before he was aware of the fact the old trouble developed anew, and the labors and hardships of a long convalescence were soon at an end. He had mistaken a convalescence for a cure and returned too soon to the environment and conditions that had once threatened his life, with a bravery that was destitute of judgment.

The brief statement of the foregoing case illustrates a few of the practical problems that are presented to the tuberculous patient. These problems require the exercise of shrewd judgment and a final and definite decision, and the nature of the decision frequently seals the fate of the patient. To continue in the environment in which the disease developed is fatal to most patients; a return to the same environment when hope has revived, but before the disease is cured, is equally dangerous.

Patients who are forced to face these problems seldom realize the significance of the decision which they are required to render. The exuberance of feeling which accompanies a pronounced convalescence is deceptive and often leads to excesses and relapses. The necessity of becoming bread-earners often forces a convalescent too soon to undertake an employment, or to enter an environment that is unhealthful.

Problems such as these tax the skill and judgment of both physician and patient to their limit. And as long as the bread-earning problem remains so closely allied to the problems of tuberculosis the difficulty of solution will remain very great.

As has already been indicated, there are cases which are diagnosed almost immediately on the appearance of clinical evidence indicating the existence of an active tuberculous condition, and although immediate steps are taken to correct the trouble, yet at no time can they be said to be classed as convalescents.

On the other hand, it is difficult to find a case, if discovered early, that does not, at some period during the course of the disease, and often at frequent intervals, show strong evidence of being classed as convalescent. These periods of apparent convalescence, unfortunately, are of short duration. The smallest disturbing factor is sufficient to terminate such a convalescence, without any apparent cause except on the ground of a new infection starting in tissues already too weak to resist further invasion.

It is rare, indeed, to find a case pass through a successful convalescence without some form of complication or relapse. The very conditions which lay the foundation for tuberculosis tend to prevent recovery, tend to delay convalescence, and tend to bring about a relapse after convalescence seems to be well established.

One of the chief duties of a physician to his tuberculous patients is that too often neglected duty of repeatedly presenting to the patient the essential rules for wholesome living. Many who are required to care for the tuberculous are content with having outlined the essential rules for healthful living, expecting patients to remember them and to put them into daily practice. I have more than once been surprised, after having spent not a little time and effort in presenting concise rules to govern their daily routine, to find that, in a great majority of cases, they had completely disregarded such advice. One becomes more and more impressed with the fact that too little attention is given to the consideration of the private life of the patient. The physician too seldom sees the patient in the environment of home. Unless a relapse occurs in the form of a hemorrhage, or

some complication making it necessary to call the physician, the patient usually calls at his office. I have, therefore, frequently found occasion to call at the home of patients when they were not expecting me, for the purpose of ascertaining how nearly they had been carrying out the instructions that had been given them. Such a visit will reveal the nature of the home environment and often explain why convalescence has not been more pronounced.

### FACTORS AFFECTING CONVALESCENCE.

The important factors affecting convalescence are: 1. An early diagnosis. 2. An early abandonment of the habits of life, or the environment, by which the patient was surrounded during the development of the disease. 3. The immediate adoption and continued enforcement of rigid rules for healthful living.

The difficulties presented to the tuberculous convalescent in securing remunerative employment is a most important retarding factor. The establishment of remunerative industries in connection with the well-endowed sanatoria may do much toward overcoming the "bread" problem for the great middle class afflicted with tuberculosis.

### TREATMENT DURING CONVALESCENCE.

The treatment of convalescence should be directed, first, with the view of correcting temporary symptoms; second, with the object of aiding body nutrition. It may be stated with emphasis that any form of treatment which tends to impair the digestion or assimilation of food, not only can do no good, but on the contrary does absolute harm.

Out-of-door life is pre-eminently the treatment for tuberculosis. Without open-air life convalescence is impossible. The climate which admits of the longest period of uninterrupted open-air life is best suited to the tuberculous patient. That region which admits of the greatest amount of outdoor life, with least discomfort, is the ideal climate. A cool, dry atmosphere is not only more agreeable but less enervating to patients than a hot, dry atmosphere. A tent, or tent-cottage, furnishing a good ventilation without exposing the patient to a draught, one capable of being adjusted to suit all conditions of the weather and all seasons of the year, furnishes the most rational mode of outdoor life, provides all the comforts that a patient requires, and is much less expensive than the indoor treatment.

A few practical points should be carefully noted in connection with the care during the convalescent stage:

Pure air and sunshine can avail but little if the patient is not provided with an abundance of suitable food.

The wisest advice to patients will avail nothing if they are not sufficiently impressed with the importance of proper living to put into practical operation the advice given them. Too often the rigid discipline is lacking in the home. It is chiefly in this respect that the sanatorium treatment surpasses the home treatment of tuberculosis.

### CONCLUSIONS.

To know when health is restored to the tuberculous patient is both important and difficult. It is a well-known fact that foci of infection lie concealed in a latent state long after all subjective symptoms have disappeared. Tubercle bacilli may have disappeared from the sputum, or may never have appeared there, and yet there may be and often are concealed foci, active or inactive, which are by no means easy to detect.

To form a correct estimate of convalescence, one must form a composite picture of all the available clinical evidence. If there is a gradual gain in weight extending over a comparatively long period; if the gain in weight is accompanied by a gain of strength; if the gain of weight and strength are permanent; further, if the cough, sputum and bacilli diminish, and finally disappear, and if this condition is maintained for a comparatively long period, a cure may be considered as practically established.

Finally, if it is evident from the clinical symptoms, physical signs or personal history, that the case was ever truly tuberculous, the conservative physician will use great caution in giving advice which will make it possible to lead his patient too near a danger.

It is safe to state that a person who has had tuberculosis, and who has been sufficiently fortunate to arrive at the advanced stage of convalescence, or even if he had been discharged as "cured," should always exercise care and should never venture too close or remain too long in the environment in which the trouble originally developed.

205 Jackson Block.

## THE DIFFERENTIAL LEUCOCYTE COUNT AS AN AID TO THE DIAGNOSIS OF FEVERS.*

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The factors influencing the movements of leucocytes are but imperfectly understood, hence a system of diagnosis based on a variation of the colorless elements in the peripheral blood is not without some hazard, yet it must be admitted that practically all we know of the physiology of the blood has been worked out in the clinical and pathologic laboratory. Stimulated by the reports to the Royal Society and observations of other workers in malarial districts, and feeling guilty of some negligence in this field in the past, I made random observations for some years which led to a systematic investigation of some 200 blood spreads with a view to ascertaining the diagnostic value of the malarial leucocyte variation.

Malarial blood has been found to vary within very wide limits, and the colorless cells show a percentage so nearly like that of typhoid fever, from which we have to differentiate most often, that it did not seem a very promising field, and I so stated at our meeting a year ago, yet, after eliminating the chief sources of error and using the clinical signs as collateral evidence, we can frequently make a positive diagnosis without searching for parasites or waiting for the appearance of the Widal reaction. This method is not to replace, but to supplement, other diagnostic methods.

It is the purpose of this paper to prove that the malarial leucocyte variation does not persist long after all the infection is eradicated, and that it should settle the controversy as to whether it is too sensitive to be used in a malarial district—in other words, that it is not to be thrown aside as of too general occurrence to be worth anything as a test.

In considering any leucocyte variation, it is necessary to have a reasonable idea as to whether this is due to the increase of the one variety or the diminution of another. Is the increase or diminution absolute or relative? What factors other than the disease in question influence it, and to what extent? The accompanying rather

*Read at the Fifty-fifth Annual Session of the American Medical Association, in the Section on Practice of Medicine, and approved for publication by the Executive Committee: Drs. J. M. Anders, Frank Jones and W. S. Thayer.

cumbersome table is adduced as a guarantee, so to speak, as well as to enable any one to criticise the conclusions drawn. The idea that it might be of use as a test that could be made on dried films away from the bedside and in the absence of facilities for culture methods, and that blood films might be exploited in other ways than generally in vogue, is what attracted me in advance of the actual work.

I believe that the enormous increase in large mononuclear cells, especially the very large macrophages, is because phagocytosis is a distinct and easily recognizable phenomenon in malarial infection and is responsible for the occasion of the hibernation of the plasmodia in the interior. We can find pigmented mononuclears after all the parasites have disappeared from the peripheral circulation, but the relative increase of mononuclears persists even longer, and, what is of more importance, is present more uniformly.

An inspection of the tables will show that in malarial infection the large lymphocytes generally nearly equal and frequently outnumber the small, with a total relative increase of lymphocytes and proportionate decrease of polynuclears, except in the beginning of a paroxysm up to about the fastigium, and frequently still later, when there may be a decided absolute and relative increase in polynuclears. Frequently, even here, however, the white cells behave as they do during the afebrile stage. Sometimes there is a marked polynuclear increase without the high fever, but, so far as observed, this is not the case in recent infection, and we generally ascribe this to the effect of quinin, especially in what is called the post-malarial condition.[1] It has so far not been otherwise observed unless a complication exists. I am inclined to regard a polynuclear increase, except under the above conditions, as positive evidence of some other disease, excluding malaria if the large lymphocytes are not in excess of the small. In my table this state of affairs has been found to be due to sepsis, cancer, syphilis with active manifestation, hemorrhage, peritonitis, rheumatism and pneumonia. We would also expect to find it in epidemic meningitis, but no such case has presented itself.

We find, then, that when we have a differential leucocyte count of over 75 per cent. of polynuclears in a presumably malarial patient, in which the large lymphocytes outnumber the small, and during the fever stage, we have a condition which might not be due to the *Plasmodium malariæ;* but if due to it, we have a blood in which the parasites would be easily found. If we have a leucocyte count showing upward of 15 large lymphocytes and less than 60 polynuclears, in the absence of an adenopathy and prior to the third week of a fever, neither the presence of the malarial organism nor the absence of a Widal reaction is needed for a diagnosis. In influenza, measles, syphilis, tuberculosis and in typhoid fever after the disease is well established, the count sometimes approaches that of malaria. The leucocyte count is of especial value in determining when the infection has been eradicated in chronic cases, and here it frequently is the only means of diagnosis at our command. In latent malaria, and cachexia, especially when there is no fever, it is the rule to find only 50 per cent. polynuclears, the large lymphocytes being frequently the most numerous element.

In typhoid fever, according to the tables of Thayer, who records nearly 200 counts, the large lymphocytes also increase; but they do not, in my experience, reach the great size and number found in malaria, and what is more practical, the diagnosis of typhoid fever should be well established after the second week, when this leucocyte confusion is most marked. When the onset of a typhoid is complicated by the lighting up of a latent malaria, the malarial feature overshadows the typhoid; but even here, if in the absence of baths, quinin therapy or other disturbing factor, the polynuclears rise and fall markedly with the fever, typhoid is very probably absent, and the therapeutic test eliminates both the fever and leucocyte variation due to the malaria.

When the diagnosis lies between malaria, typhoid or sepsis, the differential count more certainly decides the question than the absolute leucocyte count or the Widal reaction; the latter is especially fallacious in these cases. (See Table 3, Cases 2, 7, 14 and 31.) In one of these cases (14) there was a pseudo-reaction with Widal, and there appeared to be only a question of typhoid or malaria, but the differential leucocyte count at once excluded both and pointed the way to the diagnosis of malignant endocarditis. In another case, of which the record was accidentally lost, we had to differentiate between a typhoidal pneumonia, pulmonary typhoid, or a mixed infection, when the enormous polynuclear increase, the presence of only 2 per cent. of large lymphocytes positively excluded both typhoid and malaria, although there was marked tympany and abdominal pain. Subsequent events proved that it was a pure lobar pneumonia.

Syphilitic cases seem to show sensitiveness of the leucocyte proportion to the character of the lesion; in adenopathy the large lymphocytes increase, and in bone and skin lesions the eosinophiles appear increased, and when suppuration occurs we have the increase of the total number of white cells, with great preponderance of the polynuclears.

A number of counts in tubercular cases had to be thrown out because the data accompanying the films did not admit of proper classification as to fever, adenopathy, sepsis, etc.

I beg leave now to refer to the tables. Under clinical diagnosis, the preliminary clinical diagnosis is meant, the corrected diagnosis appearing in the last column. Stain No. 1 is fixation in alcohol and ether and staining in eosin and hematoxylin. No. 2, same fixation, stained with eosin and methylene blue in two steps. No. 3, same fixation, stained with eosin and polychrome methylene blue in two steps. Stain 4 is Goldhorn's, which fixes and double stains in one operation, but it has been found desirable to faintly restain with Loeffler's alkaline methylene blue. No. 5 refers to Ehrlich's method, and No. 6 to Jenner's, which has been found to answer best in inexperienced hands, but does not approach the modified Goldhorn in brilliancy of detail and fidelity of results. The basophile and neutrophile granulation are particularly well brought out. One of the precautions in the Goldhorn method needs to be mentioned, especially if it is desired to restain with blue, and that is to dilute the stain with good wood alcohol and give it double time, as else the leucocytes may be observed to "get up and leave" when examined under water to see if the contrast is good. There is, unfortunately, a personal factor in the separation of the mononuclear cells, and for this reason I have indicated the name of the observer by an initial letter in one column. I was particularly fortunate in securing the services of Dr. A. G. Love, whose patient and conscientious work represents nearly half of the counts, and almost all of these especially made for this paper. Where the number of cells

1. Memphis Med. Monthly, December, 1901.

TABLE I. WITH LEUCOCYTIC VARIATION—MALARIAL CASES.

| No. | Physician | Age | Sex | Clinical Diagnosis | Stage of Illness | Temperature When Blood Was Taken | Number of Red Cells | Number of White Cells | Per Cent. of White Cells Counted | Small Lymphocytes | Large Lymphocytes | Polymorphonuclear Leucocytes | Eosinophiles | Basophiles | Myelocytes | Parasites | By Whom Counted | Stain | Widal Test | Remarks and Corrected Diagnosis |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1-17 | Average of | 17 | cases | of Blackwater fever | by Christophers | and Stephens | | | | 10 4 | 23.3 | 65.3 | | | | not in all cases | C.A.S. | 1 | | Reports to Royal Society, 1900 and 1901. |
| 18-61 | Average of | 44 | cases | presumably malarial | by Christophers | and Stephens | | | | 18.5 | 14.5 | 63.5 | 3.5 | | | no record | C.A.S. | 1 | | Includes some cases in which leucocyte variation and absence of other disease were the only known factors. |
| 62-79 | Average of | case | s of malarial fever previously recorded | | by Krauss | | | | | 14 3 | 18.4 | 64 8 | 2 5 | | | present | K | 2 | | |
| 80 | Krauss | 24 | f | malarial fever | 2 weeks | none | 3,640,000 | 6,470 | 200 | 10 5 | 28 5 | 53 | 8 | | | none | K | 2 | | Had taken quinin: no more given. |
| 81 | Krauss | 19 | m. | typhoid fever | 1 week | 100° | | | 300 | 9 3 | 30.3 | 58 | 1 3 | 1 0 | | estivo half grown | K | 3 | no reaction | Cinchonized; complicated with influenza. |
| 82 | Krauss | | | same case | 2 weeks | 103° | | | 300 | 30.0 | 14.0 | 54 0 | 1 0 | 1.0 | | few | K | 3 | no reaction | Cinchonized; recovery. |
| 83 | Rice | 26 | f | continued fever | 3 weeks | | 4,208,000 | 3,508 | 400 | 6.8 | 31.2 | 60 2 | 1.8 | | | very few | K | 3 | no reaction | Heavily cinchonized; recovered. |
| 84 | Sutherla'd | 22 | m. | malarial hemoglobinuria | 5 days | fever | | | 200 | 8.0 | 21.0 | 67 0 | 3 5 | 0 5 | | none | K | 3 | | Later parasites; cinchonized; recovered. |
| 85 | Harris | 16 | m. | malarial hemoglobinuria | 3 days | 102° | 2,342,000 | 10,380 | 400 | 10 2 | 18.8 | 68 8 | 2.0 | 0 2 | | none | K | 3 | | Hemoglobinemia; recovery. |
| 86 | Krauss | 30 | m. | malarial hemoglobinuria | 2 days | 10 ° | 1,984,000 | 6,970 | 300 | 17.3 | 27. | 53.3 | 1.3 | 1.0 | | none | K | 3 | | No quinin; suppression 3 days; recovery. |
| 87 | Krauss | 28 | m. | malarial hemoglobinuria | 3 days | 104° | 2,162,000 | 11,400 | 300 | 13.0 | 15. | 73 5 | 0 5 | | | small hyaline | K | 3 | | No quinin; recovery. |
| 88 | Krauss | 12 | m. | malarial hemoglobinuria | 1 day | 103° | 3,325,000 | 6,900 | 400 | 13.5 | 25 | 57 | 1.0 | | | small hyaline | K | 3 | | Quinin; recovery (colored boy). |
| 89 | Sutherla'd | 23 | f | malarial hemoglobinuria | 2 days | 100° | 1,128,000 | 3,130 | 300 | 18 5 | 30 | 50 5 | 0 5 | 0 5 | | none | K | 3 | | Fever and quinin before attack; recovery. |
| 90 | Krauss | 32 | m. | malarial hemoglobinuria | 2 days | 102° | 3,146,000 | 7,600 | 300 | 12.5 | 17 6 | 68 3 | 1.3 | 0 3 | | none | K | 3 | | Parasites night before; no quinin; recovery. |
| 91 | Stanley | 46 | m. | malarial hemoglobinuria | 1 day | 102° | | | 270 | 12.2 | 39 6 | 45 5 | 2 6 | | | few | L | 4 | | Suppression third day; urine flowed sixth |
| 92 | Stanley | 46 | m. | malarial hemoglobinuria | 3 days | 103° | | | 300 | 9.0 | 6 6 | 82 3 | 2 6 | | | few | K | 4 | | day; hiccough; cinchonized 7 p.m. sixth |
| 93 | Stanley | 46 | m. | malarial hemoglobinuria | 6 days | 102 5° | 1,432,000 | 12,084 | 300 | 6 0 | 6.6 | 84 3 | 2 6 | | 1 0 | very many | K | 4 | | day; died midnight. |
| 94 | Krauss | 30 | m. | malarial hemoglobinuria | 2 days | 102 5° | 2,234,000 | 10,100 | 500 | 10.2 | 12.8 | 76 2 | 0 4 | 0 2 | 0 2 | none | K | 4 | | Had been heavily cinchonized when hemoglobinuria appeared; recovered. |
| 95 | Krauss | 30 | m. | malarial hemoglobinuria | 3 days | 100° | 1,820,000 | 6,720 | 300 | 10.66 | 29.66 | 57 3 | 2.3 | | | none | K | 4 | | |
| 96 | Krauss | 21 | m. | typhoid fever | 2 weeks | none | | | 534 | 7.3 | 30 7 | 60 4 | | 1.1 | | tertian | L | 4 | no reaction | Quinin; recovery; 5 days. |
| *97 | Jones | 18 | m. | malarial fever | 2 weeks | 104° | 2,170,000 | 4,335 | 350 | 11.8 | 33.9 | 52.5 | | 0 8 | | tertian | L | 4 | | |
| *98 | Jones | | m. | malarial fever | some weeks | fever | | | 550 | 7 6 | 18 1 | 73 + | 0 9 | 0 2 | | tertian | L | 4 | | |
| *99 | Jones | | m. | malarial fever | 1 week | fever | | | 300 | 14 5 | 22.5 | 58 5 | 3 5 | 1.0 | | many tertian | L | 4 | | Chill. |
| 100 | Krauss | 36 | m. | malarial cachexia | some weeks | 100° | 2,492,000 | 2,780 | 400 | 26 2 | 30.0 | 39 8 | 3.0 | | | many estivo | L | 4 | | Spleen 12 x 13 inches; had hematuria 2 weeks previous: parasites in splenic blood; every leucocyte on spread counted. |
| *101 | Jones | 34 | f | malarial fever | 2 weeks | 103° | | | 400 | 7.0 | 11.25 | 81 5 | 25 | | | small tertian | L | 4 | | Taken 6 hours after chill; had taken quinin. |
| 102 | Krauss | 29 | m. | malarial cachexia | some weeks | 100° | 3,040,000 | 2,168 | 316 | 13.2 | 28.4 | 56 4 | 2 9 | 0 9 | | small estivo | L | 4 | | Spleen enlarged since last August. |
| *103 | Jones | 18 | m. | malarial fever | irregular | 104° | 2,310,000 | 6,300 | 400 | 8.75 | 14.0 | 76 0 | 1.0 | 0 25 | | small estivo | L | 4 | | Had taken quinin 2 days every 4 hours. |
| 104 | Krauss | 27 | m. | malaise | 1 week | none | | | 250 | 22.6 | 24.0 | 50 0 | 3.4 | | | few | K | 4 | | Felt "bilious" for 1 week. |
| | | | | feels well | | | | | 250 | 16.4 | 9 | 71 6 | 4. | | | none | K | 4 | | Not included in totals (to show control). |
| *105 | Jones | 40 | m. | malarial fever | 3 days | none | | | 300 | 11.0 | 16.0 | 66 7 | 6.3 | | | many tertian | L | 4 | | Chill on 26th and 28th. |
| *106 | Jones | | f | slight fever | 3 days | slight | | | 230 | 15.2 | 19.1 | 65 6 | | | | many tertian | L | 4 | | Chills on 3 consecutive days. |
| *107 | Jones | | f | malarial fever | 1 week | fever | | | 240 | 9 6 | 17.0 | 72 0 | 0 9 | 0 5 | | many tertian | L | 4 | | Chills every other day; no quinin. |
| *108 | Jones | 34 | f | malarial fever | | fever | | | 500 | 9.4 | 14.6 | 75.0 | 0.4 | 0.6 | | many tertian | L | 4 | | Chill 6 hours ago. |
| *109 | Jones | 23 | m. | malarial fever | 3 days | fever | | | 250 | 13.6 | 14.0 | 72 0 | 0 4 | | | many estivo | L | 4 | | Chill last night. |
| 110 | Krauss | 30 | m. | congestive malarial fever | 6 days | 95° | | (over glass leucocytosis 8,770 | 600 | 11.3 | 28 3 | 59 2 | 1.2 | | | very many estivo two stages | K | 4 | | Cyanosed; finger blood black; 3 chills before admittance; quinin hypodermically; recovery. |
| 111 | Krauss | 29 | m. | malarial fever | 3 weeks | 100° | 3,565,000 | | 250 | 27 2 | 25.6 | 44 8 | 2.4 | | | estivo | L | 4 | | Enlarged spleen. |
| 112 | Krauss | 42 | m. | typhoid fever | 3 weeks | 101° | | | 400 | 12.0 | 19.0 | 65 0 | 4. | | | many estivo | L | 4 | no reaction | Like typhoid, but decidedly malarial next morning; broad tongue; quinin; recovery. |
| 113 | Turner | | f | typhoid fever | | | | | 300 | 9.0 | 21.8 | 68.3 | 0.9 | | | none | L | 4 | no reaction | Diagnosed malaria; quinin; recovery. |
| *114 | Jones | 28 | m. | malarial fever | 6 days | | | | 300 | 7.3 | 17.6 | 75 0 | | | | estivo | L | 4 | | Had taken large doses quinin in last 24 hrs. |
| *115 | Jones | 45 | m. | "backache" | few days | | | | 200 | 11.5 | 15 5 | 63.5 | 9 5 | | | estivo | L | 4 | | Claimed backache from "overwork;" admitted having chill on 16th. |
| *116 | Jones | 50 | m. | chills | | | | | 400 | 15 0 | 28 6 | 54 0 | 3.3 | | | estivo | L | 4 | | Chills every other day. |
| *117 | Krauss | | m. | malarial fever | some time | | | | 500 | 30 6 | 24 6 | 37.6 | 1 4 | 0.4 | | estivo | L | 4 | | Very weak; enlarged spleen; recovery slow. |
| 118 | | | | | | | | | 130 | 24.6 | 33 1 | 43 3 | | | | few | | | | |
| 119 | Krauss | 45 | m. | malarial fever | some weeks | 105° | | | 300 | 11 0 | 21 3 | 60 6 | 4.6 | 0.3 | | many estivo | K | 4 | | Had been at Tampico, Mexico; home on sick leave; is up and about. |
| 120 | | | | malarial fever | some weeks | 104° | | | 300 | 21 0 | 23.6 | 54.6 | 0 3 | 0 3 | | many estivo | L | 4 | | |
| *121 | Jones | 30 | f | malaria | some weeks | none | | | 300 | 30.6 | 23 3 | 38.5 | 1.6 | 0.3 | | estivo | L | 4 | | |
| *122 | Jones | 40 | f | fever | some time | fever | | | 300 | 9.0 | 15 0 | 76.0 | | | | many | L | 4 | | Parasites, intracellular and extracellular. |
| *123 | Jones | 8 | f | malaria | some time | fever | | | 300 | 31.0 | 23 | 44 5 | 1.5 | | | many | L | 4 | | Parasites, intracellular and extracellular. |
| *124 | Jones | 28 | f | malaria | some time | none | | | 400 | 20.2 | 18 2 | 59.0 | 2.6 | | | many | L | 4 | | Parasites, intracellular and extracellular. |
| *125 | Jones | | m. | malarial fever | some time | slight | | | 210 | 19 | 14 7 | 66 | | | | few | L | 4 | | Symptoms indefinite. |
| *126 | Jones | | m. | malarial fever | some time | none | | | 300 | 17.3 | 33.0 | 49 6 | | | | many | L | 4 | | Many crescents. |
| *127 | Jones | | f | latent malaria | some time | none | | | 300 | 20.6 | 14.6 | 61.0 | 3.6 | | | few | L | 4 | | Had taken quinin; nearly well. |
| *128 | Jones | | f | malaria | 1 week | fever | | | 200 | 12 5 | 14 0 | 72 5 | 0.4 | 0.5 | | few | L | 4 | | Had taken quinin; nearly well. |
| *129 | Jones | | m. | malaria | some time | fever | | | 300 | 11.4 | 20 3 | 66.8 | 1.6 | 0.4 | | many | L | 4 | | Many crescents and intracellular parasites. |
| 130 | Krauss | 50 | m. | fever | 3 weeks | 100° | | | 300 | 10 3 | 30 6 | 58 6 | 0 3 | | | few | K | 4 | no reaction | Came from Miss. Co., Ark.; had taken much calomel and quinin; pain over spleen |
| 131 | | | | same patient | | 104° | 3,900,000 | 2,980 | 100 | 11.0 | 12 0 | 77 0 | | | | none | L | 4 | no reaction | |
| 132 | | | | same patient | | 103° | | | 225 | 34.2 | 14 0 | 21 8 | | | | few | L | 4 | no reaction | Pleuritic friction sound; fear tuberculosis. |
| 133 | | | | same patient | | 104° | | | 300 | 8.3 | 23 0 | 68 0 | 3 0 | 0 3 | | none | L | 4 | | Dullness left axillary line. |
| Not included in totals, pneumonia, same patients | | | | | | 103° | | 15,640 | 400 | 5.2 | 6 4 | 86.4 | 1.5 | 0 5 | | none | K | 4 | | Consolidation left lower lobe; recovery. |
| *134 | Jones | 10 | m. | malarial fever | | | | | 200 | 20 0 | 26 5 | 55 0 | | 0 5 | | many | L | 4 | | Chills every other day. |

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|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| *135 | Jones | 16 | m. | malarial fever | | | | | 200 | 25.0 | 32.0 | 43.0 | | | | many | L | 4 | | | Few dumb chills; ward case. |
| *136 | Krauss | 27 | m. | latent malaria | some weeks | none | | | 500 | 36.0 | 17.8 | 54.4 | 1.6 | 0.2 | | few | K | 4 | | | No chills; malaria exposure for some weeks. |
| *137 | Jones | | m. | latent malaria | some weeks | fever. | | | 400 | 10.0 | 12.5 | 77.2 | | 0.3 | | few | L | 4 | | | |
| *138 | Jones | | m. | malarial fever | 1 week | fever. | | | 400 | 11.5 | 15.25 | 71.0 | 2.0 | 0.2 | | small E's | L | 4 | | | Trachoma; headache; bilious. |
| *139 | Jones | | f. | malaise | 2 weeks | slight | | | 400 | 19.0 | 13.75 | 66.75 | 0.5 | | | small E's | L | 4 | | | Malaise; coated tongue; quinin. |
| *140 | Krauss | 24 | m. | malaise | 1 week | none | | | 300 | 19.6 | 32.0 | 44.6 | 3.6 | | | small E's | L | 4 | | | Taken ill in Arkansas saw mill (boss). |
| *141 | Krauss | 40 | m. | malarial fever | 3 weeks | 104° | | | 270 | 9.1 | 18.1 | 72.8 | | | | many estivos | L | 4 | | | \ "Chronic" malaria; enlarged spleen; no |
| *142 | Krauss | 30 | f. | malarial fever | 6 weeks | 100° | | | 320 | 24.4 | 27.8 | 47.8 | | | | none | L | 4 | | | / parasites in spleen blood. |
| *143 | Jones | 45 | f. | "fever" | 1 week | fever. | | | 200 | 13.0 | 16.0 | 71.0 | | | | not recorded | L | 4 | no reaction | | Recovery on quinin. |
| *144 | Krauss | | m. | malarial fever | 2 weeks | fever. | | | 300 | 3.6 | 11.3 | 84.3 | | 0.6 | | many | L | 4 | | | Had large doses of quinin. |
| *145 | Jones | | m. | chills | 3 days | none. | | | 600 | 24.3 | 19.0 | 54.0 | 3.3 | 0.3 | | many small | L | 4 | | | |
| *146 | Jones | 6 | m. | chills daily | | | | | 600 | 16.0 | 13.75 | 66.75 | 3.0 | 0.3 | | very many small | L | 4 | | | |
| *147 | Jones | | m. | malaise | | | | | 300 | 18.0 | 42.6 | 39.0 | 3.3 | | | scanty | L | 4 | | | Found 2 parasites in 2 hours. |
| *148 | Turner | | m. | malaise | | fever. | | | 400 | 7.8 | 15.5 | 76.2 | 0.3 | 0.2 | | few | L | 4 | | | |
| *149 | Jones | | m. | malaise | | | | | 200 | 26.0 | 15.0 | 56.5 | 2.0 | 0.5 | | many | L | 4 | | | |
| *150 | Krauss | 21 | m. | malarial cachexia | 5 weeks | 102° | 4,300,000 | 4,400 | 400 | 8.8 | 14.2 | 75.5 | 1.2 | 0.3 | | estivos | L | 4 | | | \ Very large spleen last year; crescents and |
| *151 | Jones | | m. | chills | some weeks | none | | | 300 | 19.0 | 45.0 | 35.6 | 0.4 | | | very many estivos | L | 4 | | | / many half grown. |
| 152 | Turner | 30 | m. | continued fever | 2 weeks | 105° | | | 200 | 12.0 | 28.0 | 59.0 | 0.5 | 0.5 | | few | L | 4 | no reaction | | Very cachectic. |
| 153 | Turner | | m. | continued fever | 1 week | 105° | | | 300 | 36.3 | 22.3 | 41.3 | | | | very many | L | 4 | no reaction | | Malaria; confirmed by quinin. |
| 154 | Jones | | f. | malaise | | | | | 200 | 8.0 | 19.0 | 72.5 | 1.5 | | | crescents | L | 4 | | | Malaria; confirmed by quinin. |
| 155 | Krauss | 23 | m. | malarial cachexia | 5 weeks | 103° | 2,850,000 | 3,800 | 300 | 14.0 | 26.3 | 57.6 | 2.0 | | | few | L | 4 | | | Has taken quinin. |
| *156 | Jones | | m. | chills | some time | | | | 200 | 13.5 | 30.5 | 53.5 | 2.5 | | | many | L | 4 | | | Third attack; spleen 8 x 10 inches. |
| *157 | Jones | | m. | chills | 3 weeks | chill | | | 300 | 9.3 | 17.3 | 71.0 | 3.0 | | | many small | L | 4 | | | |
| *158 | Jones | | f. | latent malarial | | | | | 500 | 12.4 | 22.6 | 64.0 | 1.0 | | | present | L | 4 | | | Has chill now; tertian. |
| *159 | Krauss | 46 | m. | malarial infection | 8 weeks | none | | | 300 | 35.6 | 21.3 | 41.3 | 1.6 | | | present | L | 4 | | | |
| *160 | Krauss | 46 | m. | malarial infection | 8 weeks | none | | | 300 | 27.6 | 29.0 | 43.3 | | | | present | L | 4 | | | Desultory cinchonization. |
| *161 | Holder | 31 | f. | fever | some weeks | none | 4,812,000 | 4,580 | 300 | 30.0 | 21.0 | 48.7 | 0.3 | | | present | K | 4 | | | |
| *162 | Jones | | m. | chills | some weeks | none | | | 300 | 31.4 | 20.0 | 45.7 | 1.5 | | | many | L | 4 | | | Desultory treatment; 2 weeks. |
| *163 | Jones | | m. | malaria | some weeks | fever. | | | 400 | 9.8 | 15.0 | 75.2 | | | | present | L | 4 | | | |
| *164 | Jones | | m. | malaria | some weeks | none | | | 400 | 25.0 | 24.0 | 51.0 | | | | present | L | 4 | | | \ Only one parasite found; diagnosed on |
| 165 | Braun | 26 | m. | malarial hemoglobinuria | 3 days | fever | 1,590,000 | 10,000 | 300 | 9.3 | 16.3 | 74.3 | | | | none | L | 4 | | | / blood count. |
| 166 | Sutherland | | m. | malarial hemoglobinuria | 4 days | 104 5° | | | 300 | 39.0 | 23.6 | 37 4 | | | | many | L | 4 | | | Whites counted from "red" pipette. |
| *167 | Jones | 6 | m. | tertian malaria | 1 week | 102° | | | 400 | 11.5 | 16.5 | 72 0 | | | | many | L | 4 | | | Had chills for some weeks. |
| *168 | Jones | a. | m. | tertian malaria | 2 weeks | none | | | 300 | 17.6 | 43.0 | 39 3 | | | | many | L | 4 | | | |
| *169 | Krauss | 24 | f. | malaise | few days | none | | | 220 | 22 2 | 12.2 | 65 4 | | | | few | L | 4 | | | Very slight infection. |
| 170 | Jelks | 40 | m. | fever | 2 weeks | fever. | 3,903,120 | 7,500 cover glass leucocytosis | 200 | 7 5 | 20.0 | 68 0 | 4.5 | | | many | L | 4 | no reaction | | \ Sent for diagnosis; possible sepsis; qui- / nin; recovery. |
| *171 | Krauss | 26 | m. | fever | 5 weeks | 103° | | cover glass leucocytosis | 300 | 6 0 | 12.3 | 81 7 | | | | tertian | L | 4 | | | Sporulation; gametocytes. |
| *172 | Jones | a. | m. | malaria | | fever | | cover glass leucocytosis | 600 | 7.6 | 9.3 | 83.0 | | | | present | L | 4 | | | |
| *173 | Jones | a. | m. | chills | some weeks | none | | | 300 | 28.0 | 41.0 | 30 3 | 0.6 | | | none | L | 4 | | | History chills some weeks; enlarged spleen. |
| 174 | Krauss | 32 | f. | debility | some weeks | none | | | 220 | 13.3 | 23.6 | 57.7 | 5.4 | | | present | L | 4 | | | \ Loss of flesh; malaise; quinin and arsen- / ic; recovery. |
| *175 | Krauss | 38 | m. | malarial fever | 1 week | 103° | | | 300 | 4.6 | 19.0 | 74.3 | 1.6 | 0 3 | | many estivos | L | 4 | | | Double infection; spleen very much enlarged |
| *176 | Krauss | | m. | malarial cachexia | 6 weeks | 101° | 3,207,980 | 4,800 | 120 | 12.5 | 17.5 | 68 33 | 1 66 | | | tertian and crescents | L | 4 | | | Cinchonism marked. |
| *177 | Turner | | m. | malarial fever | | | | | 300 | 9.0 | 10.33 | 80 6 | | | | many | L | 4 | | | Had no chills; fever subcontinuous. |
| *178 | Jones | a. | m. | malaria | | none | | | 200 | 24.5 | 40.0 | 32 5 | 3.0 | | | present | L | 4 | | | Anemic and aching. |
| *179 | Krauss | 25 | m. | malaise | | 100° | | | 170 | 23.5 | 16.4 | 58.8 | 1.2 | | | present | L | 4 | | | \ Rigid abdomen; pain region spleen; ab- |
| *180 | Jones | | m. | | 2 weeks | none | | | 130 | 33.1 | 29.2 | 36 2 | 1.6 | | | many | L | 4 | | | / domen retracted; crescents and intracor- / puscular bodies. |
| *181 | Jones | | m. | fever | some time | none | | | 400 | 27.2 | 25.2 | 47.6 | | | | present | L | 4 | | | No treatment. |
| 182 | Krauss | 36 | m. | malaise | 1 week | none | | | 500 | 16.2 | 19.2 | 64.0 | 6.0 | | | present | L | 4 | | | Bilious; feels badly; cinchonized. |
| 183 | Krauss | | | | | fever. | 4,290,000 | 6,100 | 300 | 11.0 | 15.6 | 72.3 | 1.0 | | | many | L | 4 | | | Sick some weeks; no chills. |
| *184 | Jones | | m. | fever | some time | fever. | | | 400 | 27.2 | 25.2 | 47.5 | | | | present | L | 4 | | | |
| *185 | Goltman | | m. | malarial fever | 1 week | fever. | | | 300 | 4.5 | 15.0 | 78 0 | 2 0 | 0.5 | | present | L | 4 | | | |
| *186 | Moore | | m. | continued fever | 3 weeks | fever. | | | (?) | 24.0 | 28.0 | 48.0 | | | | present | L | 4 | no reaction | | |
| *187 | Jones | | m. | chills | | none. | | | 320 | 28.1 | 31.5 | 39.7 | 0.6 | | | very many | L | 4 | | | |
| *188 | Jones | | m. | | | | | | 200 | 9.5 | 16.7 | 70.5 | 3.2 | | | present | L | 4 | | | |
| *189 | Krauss | 26 | m. | chill last night | 2 days | 103° | | | 300 | 3.0 | 12.0 | 84.6 | 0.3 | | | many sm'l hyaline | K | 4 | | | |
| 190 | Brunwood | | f. | malarial hemoglobinuria | 2 weeks | fever. | 2,580,000 | 8,500 | 300 | 6.0 | 14.0 | 80.0 | | | | present | L | 4 | | | |
| 191 | Holder | a. | m. | malarial cachexia | indefinite | none | 2,382,000 | 7,160 | 300 | 8.0 | 38.0 | 52.0 | | 2.0 | | none | K | 4 | | | \ Enlarged spleen; lived in bottom for |
| 192 | Shelby | 6 | m. | continued fever | 2 weeks | 103° | | | 500 | 7.4 | 28.5 | 63.8 | 0.2 | | | many sm'l hyaline | K | 4 | | | / years; mitral murmur; casts; albumin; / no fever; no quinin. |
| 193 | Goltman | 1 | ½m. | fever | 1 week | 103° | | | 400 | 2.2 | 17.0 | 80 8 | | | | doubtful | K | 4 | | | \ Quinin hypod.; recovery; diagnosis on / leucocyte count. |
| 194 | Goltman | 21 | m. | suspected hepatic abscess | indefinite | 100° | 4,936,000 | 8,930 | 300 | 12.3 | 27.6 | 56.3 | 1.3 | 0.3 | | many | K | 4 | | | \ Plethoric; bronzed; history of repeated |
| 195 | Krauss | 25 | m. | malaise | 1 week | none | | | 300 | 10.3 | 13.6 | 74 0 | 1.0 | 0 6 | | few | K | 4 | | | / fevers; fragmented leucocytes; quinin; / recovery. |
| *196 | Jones | | m. | malaria | long time | | | | 400 | 13.7 | 18.7 | 63.7 | 3.5 | 0 3 | | 35 cres., 20 sml hy | K | 4 | | | No quinin; ordered comp. quinin pills. |
| *197 | Jones | b. | m. | malarial cachexia | indefinite | | 3,760,000 | 5,600 | 200 | 16.0 | 24.0 | 60.0 | 6.0 | | | present | L | 4 | | | |

TABLE I. WITH LEUCOCYTIC VARIATION—MALARIAL CASES—Continued.

| No. | Physician | Age | Sex | Clinical Diagnosis | Stage of Illness | Temperature When Blood was Taken | Number of Red Cells | Number of White Cells | No. of White Cells Counted | Small Lymphocytes | Large Lymphocytes | Polymorphonuclear leucocytes | Eosinophiles | Basophiles | Myelocytes | Parasites | By Whom Counted | Stain | Widal Test | Remarks and Corrected Diagnosis. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| *198 | Jones | | m. | malaria | | 102° | | leucopenia. | 200 | 5.6 | 9.2 | 85.2 | | | | present | L. | 4 | | |
| *199 | Jones | | m. | malarial cachexia | | | | leucopenia. | 100 | 4.0 | 30.0 | 66.0 | 10.0 | | | present | L. | 4 | | |
| *200 | Jones | | m. | malaria | | | | | 200 | 11.0 | 35.5 | 58.5 | | | | present | L. | 4 | | |
| *201 | Jones | | m. | chills | some weeks | | | | 200 | 10.5 | 19.5 | 67.5 | 2.5 | | | present | L. | 4 | | |
| *202 | Jones | | m. | malaria | | fever | | | 200 | 5.5 | 10.5 | 84.0 | | | | present | L. | 4 | | |
| *203 | Jones | | m. | malaria | | | | | 200 | 10.0 | 26.0 | 64.0 | | | | present | L. | 4 | | Chill yesterday. |
| *204 | Kincaid | | m. | malaria | 1 week | slight | | | 300 | 18.3 | 14.3 | 67.0 | 0.3 | | | present | K. | 4 | | Gradually rising fever, malaise. |

Total mean of 204—Small lymphocytes, 14.8; large lymphocytes, 19.5; polymorphonuclear leucocytes, 63.7; eosinophiles, 2.0.
(Numbers with asterisk (*) were counted expressly for this study.) (The dagger (†) represents plus.)

TABLE II. MIXED CASES.

| No. | Physician | Age | Sex | Clinical Diagnosis. | Stage of Illness | Temperature When Blood was Taken | Number of Red Cells | Number of White Cells | No. of White Cells Counted | Small Lymphocytes | Large Lymphocytes | Polymorphonuclear leucocytes | Eosinophiles | Basophiles | Myelocytes | Parasites | By Whom Counted | Stain | Widal Test | Remarks and Corrected Diagnosis. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | Krauss | 40 | m. | pernicious anemia | | | 3,104,000 | 12,300 | 200 | 24.0 | 12.0 | 54.0 | | | 10.0 | none | K. | 3 | | Megaloblasts, poikilocytes; history malarial fever, spleen enlarged. |
| 2 | Goltman | 40 | f. | pernicious anemia | | | 1,083,330 | 8,652 | 500 | 15.5 | 10.0 | 73.0 | 1.0 | 0.5 | | none | K. | 4 | | History chronic malaria; purpura; died. |
| * 3 | Turner | 18 | m. | typhoid fever | 4 weeks | | | | 502 | 22.1 | 11.2 | 66.6 | | | | none | L. | 4 | no reaction | Typical typhoid; widal not tried before. |
| * 4 | | | | typhoid fever | 5 weeks | | | | 411 | 19.3 | 32.3 | 48.4 | | | | many tertian. | L. | 4 | | Remittent curve; diagnosis intercurrent malaria. |
| * 5 | Krauss | 15 | m. | typhoid fever | 4 weeks | | | | 300 | 34.6 | 14.6 | 50.0 | 0.8 | | | none | L. | 4 | no reaction | Typical picture; not tried before this test. |
| * 6 | | | | typhoid fever | 5 weeks | 104° | | | 441 | 8.6 | 12.0 | 79.4 | | | | many tertian. | L. | 4 | react | Relapse; intercurrent malaria; perforation; death. |
| 7 | Krauss | 35 | m. | fever | 6 weeks | fever | | 9,945 | 400 | 9.5 | 12.5 | 76.0 | 1.5 | 0.5 | | estivo-autumnal | L. | 4 | no reaction | Fever; liver enlarged upwards; cough; diagnosis hepatic abscess. |
| 8 | Krauss | 1½m | | fever | | | | | 7 | 32.0 | 17.+ | 50.+ | | | | none | K. | 4 | | Indigestion, malaise; quinin; recovery. |
| * 9 | Krauss | 26 | m. | typhoid fever | 3 weeks | 104° | | | 300 | 10.0 | 6.5 | 83.5 | | | | none | K. | 4 | no reaction | Chill before taking of blood. |
| *10 | Krauss | | | typhoid fever | | 105° | | | 210 | 23.3 | 20.4 | 56.2 | | | | estivo-autumnal | K. | 4 | react | Septic curve; recovery uneventful. |
| *11 | Krauss | 22 | m. | inflammatory rheumat'm | 2 weeks | fever | | cover glass leucocytosis | 600 | 11.6 | 9.0 | 78.3 | 0.8 | 0.2 | | few | K. | 4 | | Complicating malarial infection; quinin. |
| *12 | Krauss | | | | | 100° | | | 300 | 15.0 | 6.0 | 79.0 | | | | none | K. | 4 | | |
| *13 | Jones | | m. | chills | 3 days | none | | | 600 | 23.3 | 19.2 | 54.3 | 3.3 | | | many small | L. | 4 | | Ulcerated proctitis; colitis; (syphilis?) |
| *14 | Krauss | 40 | m. | intestinal obstruction | 3 days | fever | | cover glass leucocytosis | 400 | 6.0 | 18.2 | 75.8 | | | | few | K. | 4 | | Amt. leucocytosis and slight fever with no quinin; history taken to indicate pus; appendicitis later. |
| *15 | Jones | | f. | pain all over | | | | | 400 | 13.7 | 12.0 | 73.0 | 1.0 | 0.2 | | few | L. | 4 | | Malarial infection and syphilis. |
| *16 | Krauss | 30 | m. | continued fever | 3 weeks | fever | | | 400 | 23.5 | 14.0 | 62.0 | | 0.5 | | estivo-autumnal | L. | 4 | positive | Double infection. |
| *17 | McCown | 22 | m. | leukemia | some weeks | slight | 4,625,000 | 5,323 | 300 | 16.3 | 17.3 | 64.3 | 1.0 | 1.0 | | none | K. | 4 | | Reported as malaria on this blood count; fever some weeks; recovery. |
| *18 | Jones | 36 | f. | salpingitis | | fever | 4,870,000 | 15,500 | 500 | 7.0 | 9.4 | 83.4 | | 0.2 | | present | L. | 4 | | Malarial organisms searched for and found on this leucocyte variation. |
| *19 | Jones | 25 | f. | syphilis | | | | | 300 | 17.6 | 21.4 | 59.6 | 1.4 | | | present | L. | 4 | | Headache every other day; diagnosis; syphilis and malaria. |
| 20 | Baldwin | 16 | f. | typhoid fever | 5 weeks | 102° | | | 300 | 30.3 | 31.6 | 38.0 | | | | many estivos | L. | 4 | positive | Convalescent from typhoid in cottage unscreened; no bar; spleen enlarged; superadded malaria. |
| *21 | Jones | | m. | hypertrophic cirrhosis | | fever | 3,600,000 | 19,100 | 300 | 8.6 | 13.6 | 77.6 | | | | many | L. | 4 | | History of syphilis also. |
| 22 | Goltman | 20 | m. | fever | 2 days | none | | | 200 | 12.0 | 31.0 | 52.0 | 4.0 | 1.0 | | two groups | K. | 4 | | Decortication case; also crescents; much fever. |
| 23 | Shelby | 10 | m. | slow fever | 2 weeks | fever | | | 400 | 17.2 | 15.0 | 67.5 | 0.2 | | | 5 large estivos | K. | 4 | positive | Double mixed infection. |
| 24 | | | | | 4 weeks | fever | | | 250 | 25.0 | 10.8 | 63.0 | 1.0 | 0.2 | | 3 small pigments | K. | 4 | | Old infection complicating convalescence. |
| 25 | Holder | 20 | f. | latent appendicitis | 6 weeks | none | 4,878,000 | 5,400 | 400 | 21.5 | 24.7 | 52.8 | 1.0 | | | present | K. | 6 | | Bitten by mosquitoes, 120 miles south of Memphis. |
| 26 | Blackburn | | m. | rheumatism | 3 weeks | fever | | | 300 | 10.0 | 8.6 | 81.3 | | | | present | K. | 6 | no reaction | Suspected typhoid; no quinin; no further typhoid symptoms. |
| *27 | Jones | | | rheumatism | 3 weeks | fever | 2,614,000 | 7,400 | | 13.5 | 15.5 | 62.5 | 6.5 | | | present | L. | 4 | | Endocarditis. |

Average per cent.—Small lymphocytes, 17.5; large lymphocytes, 15.8; polymorphonuclear leucocytes, 65.4; eosinophiles, 0.9; basophiles, 0.2; myelocytes, 0.4.
(Those marked with a * were taken expressly for this study.)

V 4 1906

TABLE III. LEUCOCYTE COUNT—CONTROL CASES.

| No. | Physician | Age | Sex | Clinical Diagnosis | Stage of Illness in Years, Months and Weeks | Temperature When Blood Was Taken | Number of Red Blood Corpuscles | Number of White Cells | Per Cent. of White Cells Counted | Small Lymphocytes | Large Lymphocytes | Polymorphonuclear leucocytes | Eosinophiles | Basophiles | Myelocytes | Parasites | By Whom Counted | Stain | Widal Test | Remarks and Corrected Diagnosis. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | Smyth | 30 | m. | typhoid fever | 3 weeks | 102° | 3,484,000 | 7,600 | 300 | 20.3 | 8.3 | 69.3 | 1.6 | 0.3 | .... | none | K | 3 | no reaction | Spinal myelitis. |
| 2 | Goltman | .... | m. | malaria or typhoid | .... | .... | .... | cover glass leucocytosis | 300 | 6.3 | 2.3 | 91.0 | 0.3 | .... | .... | none | K | 3 | no reaction | Malignant endocarditis. |
| 3 | Goltman | .... | f. | anemia | .... | .... | 416,000 | .... | 200 | 12.0 | 1.5 | 65.5 | 13.0 | 2.0 | 6.0 | none | K | 3 | .... | Poikilocytes; megaloblasts purpura; pernicious anemia; death. |
| 4 | Saunders | 16 | f. | leukemia | 6 weeks | slig't | 347,000 | 56,600 | 200 | 46.4 | 16.1 | 37.1 | 0.4 | 0.4 | .... | none | K | 3 | .... | Leukanemia; marked purpura; spleen enlarged; skin lemon yellow; hemorrhage nose, stomach and bowels. |
| 5 | .... | .... | .... | .... | 9 weeks | slig't | 11,200 | 400 | 31.2 | 7.2 | 47.0 | 13.0 | 1.6 | .... | none | K | 5.2 | .... | .... | .... |
| 6 | Hall | 20 | m. | leukemia | 6 weeks | slig't | 3,808,000 | 17,800 | 500 | 21.0 | 4.5 | 73.0 | 1.0 | 0.5 | 4.0 | none | K | 5.4 | no reaction | Enlarged glands; fever; diagnosis; Hodgkin's disease. |
| 7 | Mickle | 44 | m. | gallstones | 3 years | slig't | 4,564,000 | 6,200 | 300 | 22.3 | 6.6 | 69.0 | 2.0 | .... | .... | none | K* | 4 | no action. | History colics; operation; adhesions; death. |
| *8 | Jones | 35 | f. | asthma | .... | .... | .... | .... | 500 | 22.6 | 21.6 | 37.6 | 17.6 | 0.3 | .... | none | L | 4 | .... | Hypertrophied heart; granular casts; diagnosis, renal asthma. |
| *9 | Jones | 40 | f. | syphilis (sec.) | .... | .... | 3,105,000 | 8,100 | 400 | 22.7 | 10.3 | 58.7 | 7.5 | 0.8 | .... | none | L | 4 | .... | Body covered with eruptions. |
| *10 | Krauss | 41 | f. | malaria | .... | none | 3,456,000 | 6,550 | 550 | 20.1 | 8.9 | 70.9 | 0.1 | .... | .... | none | L | 4 | .... | Malaise; believed was malaria; diagnosis, negative because of leucocyte count. |
| *11 | Jones | .... | f. | rheumatism | .... | fever | 2,328,800 | 10,450 | 520 | 13.5 | 7.2 | 76.5 | 2.3 | 0.5 | .... | none | L | 4 | .... | Stiffness in joints; swelling. |
| *12 | Black | 50 | m. | typhoid fever | 3 weeks | 103° | .... | .... | 250 | 19.2 | 8.8 | 72.0 | .... | .... | .... | none | L | 4 | positive | Clinical picture distinct but mild. |
| *13 | Turner | .... | m. | typhoid fever | 3 weeks | 103° | .... | .... | 300 | 20.5 | 23.0 | 56.5 | .... | .... | .... | none | L | 4 | positive | Clear picture. |
| *14 | Venn | 56 | m. | typhoid fever | 2 weeks | 102° | .... | 18,000 | 500 | 12.4 | 4.2 | 81.2 | 2.0 | 0.2 | .... | none | K | 4 | pseudo | Malignant endocarditis; death. |
| *15 | Jones | .... | m. | aching | .... | .... | .... | .... | 400 | 14.4 | 7.2 | 78.2 | 0.2 | .... | .... | none | L | 4 | .... | Diagnosis, lumbago on leucocyte count. |
| *16 | Jones | ¼ | .... | mara-mus | some weeks | .... | 6,000,000 | 9,600 | 100 | 30.0 | 19.0 | 51.0 | .... | .... | .... | none | L | 4 | .... | Rickets. |
| 17 | Krauss | 28 | m. | sepsis | some months | .... | .... | 14,040 | ? | 9.2 | 12.7 | 73.9 | 2.3 | 1.1 | 0.5 | none | L | 4 | .... | P. F.; liver enlarged upward; history of syphilis; night sweats; diagnosis, hepatic abscess. |
| 18 | Krauss | 25 | m. | adenopathy | indefinite | none | 6,420,000 | 15,080 | 300 | 14.3 | 12.0 | 72.6 | .... | 1.0 | .... | none | K | 4 | positive | Had typhoid fever two months ago; lymphatics enlarged; not painful since convalescence; evening, fever; cough; anorexia. |
| 19 | Krauss | 30 | m. | suspected syphilis | 2 months | none | .... | 7,800 | 400 | 8.2 | 10.5 | 80.2 | 0.8 | 0.2 | .... | none | K | 4 | .... | Operation showed syphilitic peritonitis. |
| 20 | Krauss | 35 | m. | nodule liver | indefinite | 99° | 3,988,400 | 9,450 | 400 | 15.0 | 14.5 | 69.0 | 1.0 | 0.5 | .... | none | K | 4 | .... | Suspect syphilis; few suppurating lesions; hand and forearm. |
| 21 | Krauss | 60 | m. | blood poison | indefinite | none | 3,860,000 | 11,520 | 200 | 11.0 | 18.0 | 68.0 | 2.0 | 1.0 | .... | none | K | 4 | .... | Following grippe; influenza, bacilli and pneumococci in sputum; lives in swamp of Bogue Phalia. |
| 22 | Krauss | 47 | m. | pneumonia | 2 weeks | 101° | 4,120,000 | 12,000 | 400 | 16.7 | 15.3 | 66.7 | 1.3 | .... | .... | none | K | 4 | .... | Been in swamp; mosquitoes had bitten him. |
| 23 | Krauss | 30 | m. | syphilis | 6 weeks | none | 3,982,000 | 12,170 | 400 | 14.8 | 8.4 | 74.2 | 2.6 | .... | .... | none | K | 4 | .... | .... |
| 24 | Krauss | 30 | m. | syphilis | 8 weeks | none | 4,561,000 | 6,430 | 300 | 18.0 | 24.0 | 49.0 | 7.0 | 2.0 | .... | none | K | 4 | .... | .... |
| 25 | Goltman | 7 | m. | measles | .... | fever | .... | .... | 300 | 13.6 | 16.4 | 66.3 | 3.0 | 0.7 | .... | none | K | 6 | .... | .... |
| 26 | Goltman | 3 | f. | exposed measles | .... | 103° | .... | .... | 200 | 7.5 | 9.5 | 81.5 | 2.0 | 0.5 | .... | none | K | 6 | .... | .... |
| 27 | Venn | 60 | m. | gastric cancer | long time | 100° | 1,265,400 | 5,700 | 500 | 7.4 | 7.8 | 83.8 | 0.8 | 0.2 | .... | none | K | 6 | .... | Starvation. |
| *28 | Jones | .... | .... | enlarged lymphatics | .... | .... | 3,280,000 | 30,000 | 500 | 4.6 | 6.4 | 89.0 | .... | .... | .... | none | K | 4 | .... | Hereditary syphilis; my opinion is tuberculosis. |
| *29 | Holder | .... | m. | pyemia | 3 weeks | fever | 3,030,000 | 16,000 | 200 | 14.5 | 5.0 | 80.5 | .... | .... | .... | none | L | 4 | .... | .... |
| *30 | Jones | .... | m. | ankylostomiasis | .... | fever | 2,820,000 | 10,000 | 200 | 10.0 | 5.6 | 73.4 | 11.0 | .... | .... | none | L | 4 | .... | .... |
| 31 | Krauss | 30 | m. | tubercular peritonitis | 6 months | 101° | 3,678,400 | 10,340 | 400 | 13.0 | 12.5 | 72.0 | 2.5 | .... | .... | none | K | 6 | .... | .... |

Total 31 controls—Small lymphocytes, 14.26; large lymphocytes, 8.10; polymorphonuclear leucocytes, 74.49; eosinophiles, 2.80; basophiles, 0.40; myelocytes, 0.05.
Normal average—Small lymphocytes, 20; large lymphocytes, 8; polymorphonuclear leucocytes, 70; eosinophiles, 1.5; basophiles, 0.5. (The dagger (†) represents plus.)

| SUMMARY: | Small Lymphocytes | Large Lymphocytes | Polymorphonuclear | All Others |
|---|---|---|---|---|
| Mean of last 125 cases | 15.4 | 21.6 | 61.3 | 1.7 |
| Total mean | 14.8 | 19.5 | 63.7 | 2.0 |
| Thirty cases of malaria with over 102° fever | 10.0 | 17.0 | 70.0 | ..... |
| Ten cases during apyrexia | 17.0 | 23.0 | 60.0 | ..... |
| Twenty-five cases malarial cachexia (temperature under 101°) | 21.5 | 29.7 | 46.4 | 1.9 |
| Twenty-seven cases disease plus malarial infection | 18.0 | 15.0 | 64.0 | 1.5 |
| Thirty one control cases, presumably without malaria | 14.3 | 8.1 | 74.0 | 2.8 |
| Thayer's cases typhoid fever: | | | | |
| First week | 12.9 | 12.4 | 74.0 | 0.5 |
| Second week | 14.6 | 13.4 | 70.9 | 0.8 |
| Third week | 21.5 | 11.6 | 66.3 | 0.3 |
| Fourth Week | 20.1 | 14.4 | 65.0 | 0.4 |

counted is under 300, it was due to the scarcity of cells in the spread, the whole film having been gone over with a mechanical stage.

In referring again to Table 3 we find three cases very probably malarial (8, 16, 24). They were positively exposed to it in proper season, in surroundings which precluded protection, although no parasites were found on the spreads. Of the balance, 11 cases had over 10 per cent. of large lymphocytes, and only 5 of these reached the obligate 14 per cent. of Christophers and Stephens These were:

| | Per cent. |
|---|---|
| One suspected secondary syphilis, with ulcers | 18 |
| One hepatic gumma with peritonitis | 14 |
| One leukanemia | 16.1 |
| One grippal pneumonia | 15 |
| One typhoid fever, third week | 23 |

With the exception of the latter, they all had a marked leucocytosis, none had marked fever when film was taken, and the only question unanswered and unanswerable was, whether they had an associated malarial infection.

## CONCLUSIONS.

1. It is not so much the absolute increased per cent. of large lymphocytes which is diagnostic of malarial infection as the relative increase over the small lymphocytes.

2. In cases of malarial infection without much fever and without quinin history, the polynuclears are markedly diminished and the large lymphocytes very much increased in proportion.

3. In the absence of an adenopathy, possibly also of influenza and measles, the above finding is positive evidence of present or very recent malarial infection.

4. During the rise of a malarial fever, or as a result of quinin therapy, the polynuclear leucocytes may reach 80 per cent., but in that event the large lymphocytes exceed in number the small ones.

5. In malarial hemoglobinuria any of the various blood findings characteristic of malarial fever may be present in any stage, and there is no evidence now at hand to explain this.

6. Malarial and typhoid fevers can be more positively differentiated from fevers of sepsis, pneumonia, rheumatism, malignant tumors, etc., by the differential leucocyte count than by the hemocytometer, and it can be done on dried films, away from the bedside.

7. Malarial infection makes a strong impress on the leucocytic relation, no matter with what other disease it is associated.

8. It is not safe to rule out typhoid fever when the malarial variation is found, but, as it calls for antimalarial medication, the therapeutic test may decide before a Widal reaction would appear.

9. In a gradually developing fever, the absence of marked increase in large lymphocytes or polynuclears during the first week justifies a preliminary diagnosis of typhoid fever.

## DISCUSSION.

DR. RICHARD CABOT, Boston—What criterion is used in the classification of blood cells for a large and what for a small mononuclear? No two men agree, and no two men are likely to observe the same rules in regard to this point, and this uncertainty makes the results of Dr. Krauss and the English school less available. At the same time I am influenced toward the conviction that what he has given us will be of value in confirming the diagnosis of malaria. I am not convinced that it will take the place of the direct observation of malarial parasite, because the same amount of work required to demonstrate the percentage of large mononuclear cells would usually suffice to demonstrate the parasite itself. What has most interested me in the paper is its tendency to prove the central importance of the examination of the film specimen; this implies that the count of the red cells is less important, and in many cases is practically of little value. I seldom count the red cells. What we should count is the white corpuscles, and especially note their differential relation to each other. If we know what actually can be obtained from the film specimen (dried on glass and stained) we know all that will give information of value as regards the diagnosis in four-fifths of the cases; nothing more in many cases could be learned from an actual count of the cells.

DR. ROBERT N. WILLSON, Philadelphia—Unless I have misunderstood his statement I think that there is an error in the assertion of Dr. Krauss that a high percentage of polymorphonuclear cells in the blood excludes malaria and typhoid fever from the diagnosis. I have personally had the privilege of studying a large number of cases of both typhoid fever and malaria with reference to the blood picture, and in common with many other observers have repeatedly found a high percentage of these cells in the presence of complicating conditions. In such cases, unless this fact is remembered, the count will hinder rather than help toward a proper diagnosis. One particular case which I have reported was that of a former member of this Association, a physician who died of perforation of the bowel in typhoid fever. In this instance the polymorphonuclear percentage remained almost constantly about 9 per cent., and was highest at the time when the total leucocyte count was at its lowest point (6,400). In one or two other cases of typhoid perforation, proved by autopsy, there was the same occurrence. One case seen recently, however, was of typhoid complicated by cystitis, in which there was a polymorphonuclear count of only 54 per cent., in spite of the presence of quantities of pus in the bladder and urine. With regard to the statement made by both Drs. Cabot and Krauss that in certain cases the malarial organisms failed of discovery because quinin had been given to the patient, it is interesting to note that in the Philadelphia Hospital I have studied a number of cases in which the parasite could not be discovered after a very careful search until after quinin had been given. This experience was shared by a number of other observers in the same hospital, and has extended over several years time.

DR. C. R. GRANDY, Norfolk, Va.—It often happens in my section of the country that the people will take quinin before coming to the physician for a diagnosis, and, therefore, in many of these cases a blood examination is made more difficult. I wish Dr. Krauss would state distinctly if he has found an increase of large lymphocytes in such cases.

DR. W. E. ROBERTSON, Philadelphia—In the consideration of the differential leucocyte count, the influence of age is an important factor. As is well known, the younger the child the more pronounced the leucocytosis. Then too, up to the fifth year of life there is a marked lymphocytosis, the polynuclears being proportionately deficient.

DR. WILLIAM KRAUSS—The difference between a large and a small mononuclear cell is an arbitrary one. The best way is to class all the cells the size of a polynuclear cell as small unless the protoplasmic margin is relatively large and contains scattered neutrophile granules, which stamps the cell as a "large" one. In refutation of Dr. Cabot's contention, English observers have found the leucocyte count a great saving of time in differentiating latent malaria and when plasmodia are absent in peripheral blood. If you make a slide spread a differential leucocyte count can be made in 20 minutes at the far edge of the film, whereas it might take two hours' patient search to find a parasite, and, even if found, it furnishes no information as to the possible presence of a complication. The polynuclears may be increased in malaria, but the relation of the lymphocytes is not interfered with, and when found at the height of a fever, the polynuclear increase points rather definitely to presence of malaria and absence of typhoid. The best evidence of the real value of this diagnostic measure is that in the tables, in which the diagnosis had to be bolstered up by all the collateral evidence available in order to prove my point—it was frequently the sole sign post to a correct diagnosis. The

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answer to Dr. Willson's question appears in the tables. In answer to Dr. Grandy I would say that here it was that I found my best field; in persons cinchonized, the question: Should they not be further cinchonized? is best answered by the malarial lymphocyte variation, as it is more sensitive than the presence of plasmodia or pigmented leucocytes. As to Dr. Robertson's question, in children over one year old the variation is usually reliable.

## PHYSIOLOGIC OPTICS.

### NEW EXPERIMENTS FOR DEMONSTRATION AND NEW APPARATUS.*

WINFIELD S. HALL, M.D.

Professor of Physiology, Northwestern University Medical School.

CHICAGO.

When it was proposed to establish a laboratory course in the physiology of vision, the head of the department of ophthalmology was requested to state what he wished students to know in this field when they presented themselves in his department for clinical work on the eye. The reply was in effect this:

Before the student can enter on the clinical study of the eye he should be acquainted with: the anatomy of the conjunctiva; the lachrymal apparatus, including the drainage and the extrinsic muscles; the circulation, extrinsic and intrinsic; the nerve supply of the muscles, the mechanism of muscle action, the gross and minute anatomy of the coats of the eyeball; the refractive media, the retinal circulation, and the ciliary apparatus. He should thoroughly understand the functions of all the parts studied. The student can not hope to succeed in clinical ophthalmology unless he has a clear understanding of the refractive media of the eye from an optical standpoint: the indices of refraction; the law of lenses and their influence on the path of a ray of light; in short, the dioptric system of the eye. He must understand the mechanism of accommodation and be able to determine its range; he must be able to outline the field of indirect vision for form and color, and to map the distribution of the retinal vessels through ophthalmoscopic examination of models and of the eyes of animals and of normal man.

In the development of a course to cover the required ground, several new appliances and methods have been devised to facilitate the laboratory instruction, and I take this opportunity to make a brief description of the more important of them together with diagrams showing their structure.

In these optical appliances three requirements are met: accuracy, simplicity and economy.

#### TO DETERMINE THE INDICES OF REFRACTION OF WATER AND OF GLASS.

A very convenient and sufficiently exact apparatus for making the required determination may be easily made as follows:

Take a carpenter's tri-square, constructed wholly of iron, from the angle $x$ (Fig. 1), where the graduated limb joins the body, measure off centimeters on the inner surface of the body and cut them in with a file.

Locate on the inner edge of the graduated limb any point as $y$, 6 to 9 centimeters from the point. With files remove about one-half centimeter of the edge as indicated in figure, cutting deeply at $z$, so as to leave a slender point at $y$, as indicated.

Drill a hole in the inner surface of the body at $o$; fit and drive a heavy brass or iron wire into this; sharpen the upper end of the wire. The length of the wire above the body must be two or three centimeters, greater than the distance $x\ y$. Bend the point over so that distance $o\ p$ shall equal $x\ y$.

Place the instrument in the water pan; fill the pan, so adjusting it that both points $p$ and $y$ will just fail to touch the water, for the surface of the water at $y$ must be absolutely plane. If the points touch it the surface will not be plane.

Bring a small rule, $r$, into position and clamp it to the limb of the instrument by means of heavy serre-fine forceps. So adjust the rule that as one sights along its upper edge the points $a$, $y$ and $3$ seem to lie in the same straight line. Lift the apparatus out of the water and lay it on the table, taking care not to disturb the adjustment.

With dividers measure the distance from the point $y$ to line $3$. This is the radius. Determine the point where the circumference would cut the upper surface of the rule, say point $b$.

From this point determine the perpendicular distance to the edge of the limb at $c$.

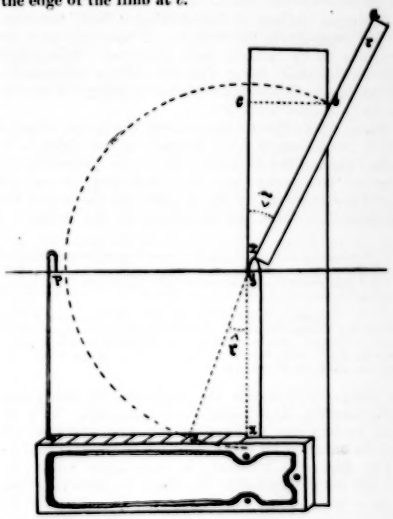

Fig. 1.

The line $c\ y\ x$ is a normal to the surface of the water at the point $y$. The angle $i$ is the angle of incidence; the angle $r$ is the angle of refraction. Imagine a circle whose center is at $y$ and circumference passes through $b$ and $3$. The line $b\ c$ is the sine of the angle of incidence. The line $x\ 3$ is the sine of the angle of refraction.

#### DETERMINE THE RATIO OF SINE I TO SINE R.

In the same manner determine the ratio of these angles when the rule is also adjusted as to bring $a\ y\ 2$ or $a\ y\ 4$ apparently in one straight line.

If the instrument has been carefully constructed, and if the determination has been made with sufficient care, the ratio, sine i : sine r, will be found to be practically equal to the ratio, sine i : sine r; furthermore, the ratio for any substance such as water, is found to be constant. This constant ratio is called the index of refraction, and is conventionally represented by $\mu$.

* Read at the Fifty-fifth Annual Session of the American Medical Association, in the Section on Pathology and Physiology, and approved for publication by the Executive Committee: Drs. V. C. Vaughan, Frank B. Wynn and Joseph McFarland.

For water.....$\mu = \frac{\text{sine i}}{\text{sine r}} = \frac{2.66}{2.00} = \frac{4}{3} = \frac{5.33}{4.00} = 1.33+$

To determine the index of refraction of glass, proceed as in the case of water. Set the instrument on the table; the block of glass may be placed on the body of the instrument, the polished surfaces being placed above and below. If the distances between the polished surfaces is not equal to $x\ y$, a point $y'$ may be located on the upper surface near the edge of the glass block by making a dot with ink where the line $x\ y$ cuts the upper surface of the block. This line is the normal.

Proceeding with the glass according to the same method as that followed in the case of water, one finds first, that,

the ratio..... $\frac{\text{sine}}{\text{sine r}}$ equals the ratio $\frac{\text{sine i'}}{\text{sine r'}}$

further, that the ratio is constant and for crown glass equals 1.5.

### TO DETERMINE THE FOCAL DISTANCE OF A LENS.

A simple method of determining a focal distance of a lens depends on the relation of the conjugate focal distances to the general focal distance. This relation may be expressed thus: The sum of the reciprocals of the conjugate foci is equal to the reciprocal of the focal distance, $1/o+1/i=1/F$.

When a lens throws on a screen the image of an object it is evident that the distance of the object $o$ represents one and the distance of the image $i$ represents the other of these conjugate focal distances; so one may say: The reciprocal of the distance of the object from the lens, $1/o$, plus the reciprocal of the distance of

Fig. 2.—Apparatus for determining the principal focal distance through the observation of the conjugate focal distances. o, Object; l, lens; i, image. The conjugate focal distances ol and li may be represented by f and f respectively. c, Lens carrier which slides along the guide on the bottom of the box.

the image, $1/i$, equals the reciprocal of the general focal distance, $1/F$; thus $1/o+1/i=1/F$. This formula enables one to compute the focal distance after first determining by experiment the values of $o$ and $i$.

The apparatus necessary is very easily constructed. For the determination of the focal distance it is usual to have both object and lens movable. For our purpose this may be dispensed with, as it lends little to the reliability of the result and detracts much from the simplicity of the apparatus. Construct from half-inch pine boards a box 1 meter long and about 8 cm. high and wide (inside measurements). The box should be open at one side, while the inner surface of one end may be painted white and serve as a screen. The other end should have in its center a large hole. Over this hole on the inner surface of the end, fix a sheet of lead or copper in which some figure has been cut, $o$. Construct a lens carrier, $c$, whose pointer, $p$, will indicate on the scale, $s$, the position of the center of the lens. The use of the instrument will be somewhat facilitated if the distance between the surface of the screen and the surface of the lead or copper be purposely made 100 cm. One needs a lamp or candle to place behind the metallic screen at $o$ (Fig 2).

Place a light behind the metallic screen; it shines through the figure cut through the screen. This illuminated figure is the object. Place a lens in the carrier and so adjust it that the plane which it represents is perpendicular to the axis of the instrument and its center is in the same perpendicular plane with the index, $p$, of the carrier. Slide carrier along the base until the object is sharply focused on the screen.

Read from the scale, or measure with a rule, the distance of the lens from the image $i$. If the instrument is made just 100 cm. between the screen and the object, then the difference between 100 and the reading will be the distance of the lens from the object. The image is inverted.

We have now simply to use the general formula given above, substituting the values observed in the experiment.

(1)..... $\frac{1}{o}+\frac{1}{i}=\frac{1}{F}$ (2)..... $F=\frac{o\ i}{o+i}$

(3).....But $o+i=100$ (4)..... $F=\frac{oi}{100}$

From this form of the statement it is evident that the lens will throw a distinct image in either one of two positions. This may be demonstrated experimentally.

The value of the formula, $1/o+1/i=1/F$, is so great and its application in physiologic optics so frequent, that the student should thoroughly familiarize himself with the properties of lenses as revealed in the formula.

The following are some of the problems which may be solved with this apparatus:

1. When the object is twice the focal distance, what is the distance of the image?
2. When the distance of the object is 2F, how does the distance of the image compare with 2F?
3. When the object is at a very great distance ($\propto$), at what distance will the image be formed?
4. What is the maximum focal distance that may be determined or verified with above-described apparatus? Discuss in detail.

### TO LOCATE EXPERIMENTALLY IN THE MAMMALIAN EYE THE CARDINAL POINTS OF THE SIMPLE DIOPTRIC SYSTEM.

In the study of the glass lens, one takes into consideration the index of refraction and the radius of curvature of the surface of the lens. When one remembers that the eye possesses media of two different refractive indices bounded by three curved surfaces: Anterior corneal surface (radius, 7.829 mm.), anterior and posterior lens surfaces (radii, 10 and 6 cm., respectively), the complexity of the problem becomes apparent.

It has been shown mathematically that a complex optical system consisting of several surfaces and media, centered on a common optical axis, may be treated as if it consisted of two surfaces only.

Applying this principle to the eye, it has been found that the several media and surfaces may be reduced to two parallel spherical surfaces, whose radii are 5.215 mm. These surfaces cut the optical axis just posterior to the cornea, and are only one-third millimeter apart.

To further simplify the optics of the eye, it has been customary to reduce it to a simple dioptric system by assuming one refracting surface near the posterior surface of the cornea midway between the two computed surfaces.

A simple dioptric system is one in which the ray passes from one medium into a secondary medium of different refractive index, the surface of separation of the two media being a spherical surface.

The cardinal points of the simple dioptric system are:

1. The nodal point, which is the center of the curvature of the spherical surface (N, Fig. 3).
2. The principal axis—the line o R N in the figure.

3. The first and second principal foci, the second being in the fovea centralis.

4. The principal point where the visual line cuts the curved surface (P, Fig. 3).

5. The principal focal planes, the second being in the retinal surface.

The nodal point must be experimentally determined; all other points are evident in the anatomic arrangement of the refractive media of the eye. Let us attempt to locate the nodal point in a rabbit's eye. Represent the distance from the retina to the nodal point by *n*, the distance from the object to the image by *d*, the vertical dimension of the object by *o*, the same dimension of the image by *i*. From the similar right triangles of the figure one may write:

(1) o:i = d-n: n; (2) on = id−in; (3) $n = \frac{id}{o+i}$

Under the conditions of the experiment, *i* is so small compared with *o* that it may be ignored in the denominator, and we may use the equation:

(4) $= \frac{id}{o}$

A convenient object to observe is a well-illuminated window, or a sash of a window; measure the vertical distance between the horizontal strips of the sash.

Arrange three or four tables end to end in a line perpendicular to the plane of a window. On the table lay off from the plane of the window the distances 5, 5.5 and 6 meters.

Remove an eye from a rabbit which has been

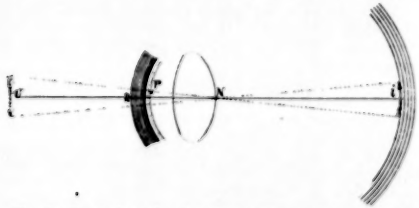


Fig. 3.—Diagram of the dioptric system of the eye. R, Point where visual line enters cornea; P, principal point of dioptric system; N, nodal point; o, object; i, image; distance o-N and i-N may equal o and i respectively.

chloroformed some time before, and suspended by the anterior limbs. Dissect from the eye, especially from the posterior aspect, all of the areolar connective tissues, muscle tissues, etc., down to the glistening smooth sclera. Wrap around its equator a band of absorbent cotton wet with normal solution.

Fix the eye in the clamp with its axis transverse to the axis of the clamp, taking care to exert just enough pressure to prevent the eye from falling on being touched, but not enough to distort it.

Fix to the clamp a thread with a bit of lead to serve as a plumb line. Adjust the support so that the eye is directed toward the object, and the image is located approximately symmetrically about the fovea centralis, and the plumb line over the five-meter mark. With the fine-pointed dividers measure in the image the distance between those points which were chosen as the limits of the object. The value of this measurement may be read to tenths of millimeters by laying the divider points on the steel rule and reading with the hand lens.

Make a similar observation at 5.5 m. and 6 m. Each observation should be made three or four times and the average taken.

Record these averages in a table ruled with columns for the values *d*, *o*, *i*, *n*. Calculate for column *n* the values obtained by substituting in the formula, n=id/o, the values observed above. The value calculated for *n* should be approximately the same for the several observations.

Measure the anteroposterior diameter of the eye. How far anterior to the posterior surface of the sclera is *n* located? How far from the surface of the cornea? How does the ratio of these two quantities differ from that given above for the human eye.

The student may be asked such questions as the following:

Is the image erect or inverted? Explain the phenomena.

Move the eye to within a meter of the object. Note that a fairly clear image may be thrown on the posterior segment of the sphere, which is many hundred times the area of the fovea centralis.

If a fine sharp needle be thrust through the eyeball, following a course perpendicular to the optical axis and cutting it at *n*, what relation would this needle have to the lens? Would it be tangent to the lens, would

Fig. 4.

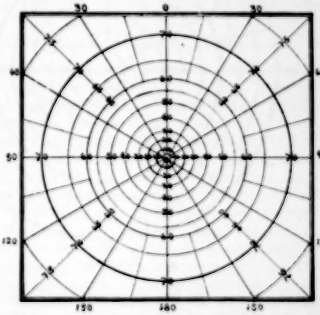


Fig. 5.

it enter the lens, or would it pass free of its posterior surface?

For these experiments the eye may be frozen after the introduction of the needle and a vertical longitudinal section made.

### TO MAP THE FIELDS OF INDIRECT VISION FOR FORM AND COLOR.

The instrument usually used for this purpose, the perimeter, is far too expensive for the laboratory use of students. To acquaint the student with the important technic of perimetry, I devised a plane perimeter which involves the same principles utilized by Landoldt in his plane perimeter devised many years ago and published in the *Handbuch der gesammten Augenheilkunde*.[1]

This appliance proved so satisfactory and so simple that it came into general use in the neurologic and ophthalmologic clinics of the institution with which the laboratory is connected.

The plane perimeter is constructed as follows: Take a blackboard whose dimensions are about 1 m. by 1/5 m. Locate a point 40 cm. from one end and 50 cm.

1. Vol. III, Erster Theil, pp. 52-54.

from either side. Let this be the point of fixation or the point where the line of vision falls on the surface of the board.

We propose now to draw on the blackboard a series of circles whose distances from one another shall represent an angular distance of 10 degrees. Reference to Figure 4 makes it evident that if the line AB represents the plane surface of the blackboard, and if the eye be place at o, the equal increments of 10 degrees on the quadrant become a series of increasing increments on the surface of the board. The numbers at the right (Fig. 4) show just how many centimeters the radius of each successive circle should be, provided the distance of the eye from the board be taken at 20 centimeters.

After drawing the circles draw meridians which divide each quadrant into three or nine subdivisions. The complete blackboard chart will have the appearance and proportions shown in Figure 5. The circles and meridians should be traced permanently in white enamel on the surface of the blackboard. Any marks on the board in chalk may then be erased without disturbing the perimeter circles.

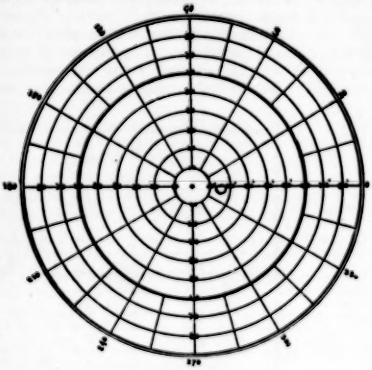

Figure 6.

The most satisfactory test objects are pieces of fresh crayon not over 1 cm. in length. They may be held in wire loops of convenient length.

Each blackboard must be provided with a rest or contrivance to insure that the subject's eye is 20 cm. from the surface of the board. Whether this takes the form of a rod of wood extending out from the board and so adjusted that when the subject rests the most prominent infra-orbital region on its end the cornea will be 20 cm. from the center of the chart, or whether it takes some other form that insures the same results, is of little consequence.

In all observations which are subsequently indicated, it is taken for granted that the visual axis is perpendicular to the surface of the chart, that the center of the chart is the point of fixation, and that the accommodation is kept uniform, i. e., the eye is either uniformly focused on the center of the blackboard perimeter or uniformly relaxed; further, that the eye not under observation be closed or closely shaded.

Examine the upper median quadrant by sweeping a white test object around arc 60, keeping the test object as near the surface of the chart as possible. If the subject does not see the object, try arc 50 degrees. Having located the circle which seems to be near the boundary, locate on each meridian a point which indicates the limit of indirect vision in that direction. Join with a continuous line the points located, thus inclosing an area of indirect vision.

Test the lower median quadrant in the same way. Is the total area covered by indirect vision in this quadrant greater or less in extent than that in the upper quadrant?

Test the upper lateral quadrant and then the lower lateral quadrant. Are these two quadrants practically equal?

Is there any ready explanation why the outer two quadrants should contain such an excess of area over the inner two quadrants?

### TO RECORD THE PERIMETER OUTLINE.

For this purpose one should have printed charts in which the circles are equidistant. They represent concentric arcs of a quadrant with 10° of the circle between each two, while the circle on the blackboard represents a radical projection of these areas on a plane tangent to the sphere at the point of fixation. In transcribing the perimeter on the record chart, one has only to locate twelve or more points located on the observation chart and join these points into a continuous perimeter.

In the above experiment we have determined the perimeter for light sensation only, the subject being conscious simply of a light or white spot on a dark ground, but not certain whether the spot is circular or square.

After determining and charting various color perimeters, as red, green and blue, we may inquire:

Have the color perimeters the same general form as the white perimeter? If not, describe any noticeable variations. Which of the color perimeters encloses the greatest area?

Take corresponding perimeter for the other eye. To use the same blackboard it will be necessary to turn it the other edge up. In what general respect do the perimeters differ from those of the left?

With the help of light perimeters of the right and left eyes determine the field of binocular vision. This is the field of binocular indirect vision.

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**Live Foreign Bodies in the Larynx.**—Liaras of Alger has had occasion to observe 3 cases of leeches clinging to the wall of the larynx. He relates the cases in detail and reviews the literature on the subject of live foreign bodies in the larynx. The leech spontaneously traveled out in one case after gargling with tobacco water, and in the others he was able to seize and remove it with forceps. The presence of the leech causes coughing, bloody expectoration, altered voice and respiration and pain. The attacks of coughing may become convulsive and the attacks of suffocation more and more pronounced. He advises intubation as the rational mode of treating such cases. The physician can then wait in confidence that the leech will come out spontaneously to escape the pressure of the tube, this event hastened by sprays or inhalation of tobacco, iodoform, salt water, etc. If the animal is not dislodged by the end of five or six days, and the patient shows signs of anemia from the loss of blood or inflammatory reaction in the larynx, thyrotomy may be indicated as the last resort. In his communication to the *Revue Hebd. de Laryngologie*, xxv, 11, Liaras remarks that the horse leech, hemopis, abounds in Algiers and Sicily, and that it is frequently found in the mouth, nasal fossæ and pharynx of both man and animals. Chavasse observed two cases of its presence in the larynx and collected 17 others in his experience as an army surgeon in Algiers. Contrary to Liaras, he recommends immediate incision without wasting time on medical measures.

# POISONING BY WOOD ALCOHOL.

## CASES OF DEATH AND BLINDNESS FROM COLUMBIAN SPIRITS AND OTHER METHYLATED PREPARATIONS.

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MONTREAL.
AND
CASEY A. WOOD, M.D.
CHICAGO.

(*Continued from page 1123.*)

These additional cases of death and blindness from the ingestion of methyl alcohol, collected by Dr. Wood, demonstrate that the baleful influence of the poison is still on us in undiminished force. The form of the drink has, as might be expected, assumed a variety in keeping with its extended employment. Thus we find that in some hitherto unpublished instances the victims drank, in addition to the commoner forms of wood spirits, methylated "essence of peppermint," numerous patent medicines whose chief menstruum was "deodorized" methyl alcohol, "eau de cologne," "Florida water," "bay rum," "witch hazel," lemon "extract," "punch," "high-balls," "hot drops," and red ink. In other respects the histories parallel those collected by Dr. Buller. We propose to use the histories thus made available for a few additional remarks on the general subject of methyl alcohol intoxication.

### TOTAL NUMBER OF METHYL ALCOHOL VICTIMS.

From Dr. Buller's tables of published histories we have a well-authenticated list of 54 cases of methyl alcohol amblyopia, to say nothing of the deaths that are incidentally mentioned, of which no particular record was made. As the proportion of deaths to survivals with blindness is a fairly constant one, and reading the reports intended to describe the blindness only, we may put down 40 as the minimum number of published deaths.

Reference has already been made to the experience of Dr. Moulton with deaths from wood alcohol on Indian reservations. Other ophthalmologists tell the same story about these "strictly preserved" localities. One observer, who has reported several cases of methyl alcohol amaurosis, says regarding them: "Almost the first question I ask an amblyopic patient from a reservation is, What have you been drinking? The answer almost invariably is, Columbian spirits, Jamaica ginger, or something of that sort. It is no trouble to find the deleterious effects of methyl alcohol among these people. As for Indians, they will drink anything they think has alcohol in it, even red ink."

Nor is the consumption of methylated compounds as a substitute for ethylic alcohol confined to Indian reservations. Wherever men in any walk in life are deprived of a chance of indulging in the usual forms of ethylated beverages, they are very likely to drink some tempting form of methylated mixture. Assistant Surgeon X. writes me: "The temptation of the men of this post is particularly great, as we are over ten miles from the nearest saloon. At the time the deaths occurred the men, having consumed all their grain alcohol, had to have something to 'sober up' on, so they got hold of Columbian spirits and drank it, hardly knowing or caring what they were taking." Perhaps if the United States Army had been supplied with a properly regulated canteen, where light wines and good beer were sold, these soldiers would have "sobered up" on non-poisonous drinks and not on wood alcohol!

The list of previously unrecorded cases of blindness, so far as Dr. Wood has been able to collect them, includes 89 well-authenticated cases from the drinking of methylated liquids. Absorption of the fumes is responsible for ten instances of amblyopia, while the deaths (without history of previous blindness) number 82. Altogether, then, we have 153 instances of blindness and at least 122 cases of death from methyl alcohol poisoning during the past few years—275 in all.

Our reasons for believing that these figures by no means complete the roll of serious intoxication from this poison we have already pointed out. How many cases of death and blindness (or both combined) have resulted from methylated preparations since the comparatively recent introduction of Columbian spirits is a matter of conjecture; probably 400 instances.

Since this article went to press, the newspapers report the deaths of twenty-five persons in a certain district in New York City from drinking whisky which contained wood alcohol and which was purchased in a saloon. The newspaper account continues: "The police to-night arrested Rudolph Fritsche, the proprietor, and closed the place. A chemical analysis of the stomach of one of the victims who died of acute gastritis showed the presence of wood alcohol, which also was found in a bottle of whisky purchased at the saloon."

### COMMERCIAL FORMS OF METHYL ALCOHOL.

Although that nauseous and vile-smelling fluid is still purchasable as wood alcohol, wood spirit, pyroligneous spirit, wood naphtha and methylated spirit, its place in commerce has been almost altogether taken by the deodorized variety, of which "Columbian spirits" is easily the best known and most widely used. There are many other forms of this fluid on the market, such as "colonial spirits," "union spirits," "eagle spirits," etc., in the United States. "Green wood spirits" (mostly used for fuel) and "standard wood spirits" (a more thoroughly deodorized article) are largely sold in Canada and intended for the same purposes as the American Columbian spirits. The deodorized fluids all have the same volatile, agreeable, vinous odor, and the pungent, biting taste as pure ethyl alcohol, and it is often difficult for the average individual to distinguish them from grain alcohol. It is, therefore, quite easy to understand how the thirsty one, unaware of the danger to life and eyesight, might indulge in a drink of the methylated product. Manufacturers of all sorts of alcoholic potions have not been slow to take advantage of this fact; indeed, there is hardly a "liniment," an "essence," an "extract" or a "bitters"—hardly any nostrum or concoction, medical or domestic, in whose preparation alcohol is employed—that has not been, or is not now, adulterated with this poison. We have within the past few months had several proprietary remedies, suspected to have produced blindness, carefully analyzed; they all contained wood alcohol.

As stated on the highly ornate labels of the bottles intended for retail consumption, one form of methylated "spirits" is highly recommended for "bathing, burning and cleaning." Among the uses specified are "bathing and sponging the sick; making liniments; rubbing for rheumatism, bedsores, etc.; veterinary uses where alcohol is required; Turkish bath cabinets; burning under chafing dishes and in spirit lamps; removing oil and grease from brass and woodwork." In all these instances ample opportunity is afforded for absorption of the poison.

A few instances—there are hundreds of others—of the use of "deodorized" wood spirit as an adulterant of or substitute for grain alcohol may be given:

In the 1903 report of Dr. R. O. Brooks, state chemist of New Jersey, it is shown that from four to eight samples of paregoric (page 7) and from four to eleven samples of ginger (page 24) contained wood alcohol—a fact that would seem to indicate that drug adulteration with wood alcohol is still practiced to a considerable extent.

Scoville[5] reported that he found two out of six commercial liniments containing wood spirit; also the same poison in several brands of witch hazel.

Dr. Allen Greenwood of Boston found quite recently that two of his patients had been furnished tinctures whose menstruum was "Columbian spirits." The druggist, on being called to account, stated that many tinctures are now being made with "spirits" of this kind!

The president of the New York Board of Health ordered in 1902 an examination of the ingredients in the Jamaica ginger and spirits of ammonia sold by druggists throughout the city. The official chemist found that 40 out of 215 drug stores were substituting wood alcohol for grain spirits. Warrants were issued for these offenders.

Dr. Warren, the pure food commissioner of the state of Pennsylvania, reports that to Feb. 5, 1904, he had collected and examined 1,000 samples of cheap whisky from all parts of the state. Over 95 per cent. of the samples contained varying quantities (some as high as 75 per cent.) of wood alcohol. He believes that 5,000 cases will be found in the state and is determined to prosecute them.

In 1902 E. L. Patch of Stoneham, Mass., reported to the American Pharmaceutical Association that he found wood spirit in 40 out of 225 samples of spirit of camphor.

Without further multiplying examples of this brazen attempt at wholesale poisoning we finally present a recent report of the dairy and food department of the state of Minnesota, who condemned and pronounced illegal, because of their containing wood alcohol, samples of lemon "extract" from all parts of the state. These poisonous products were put up and sold by wholesale manufacturers of (?) respectable standing in Chicago, St. Paul, Minneapolis, Duluth and Milwaukee. In addition to this list they also found four cases in which methyl alcohol was used in the manufacture of Jamaica ginger, two cases of vanilla extract, one of pineapple and two of strawberry.

## TOXICITY OF METHYL ALCOHOL.

While a study of the cases reported in this article must undoubtedly establish the fact that the majority of those who imbibe a moderate quantity—say two or three ounces—of wood alcohol or its equivalent of methylated liquids, escape permanent damage, i. e., most persons are, to some extent, immune to serious poisoning by small quantities of methyl alcohol, this is by no means true of larger quantities; nor does it, by any means, prove the immunity of every person from poisoning by very small quantities. Until the experiment has been made nobody can be assured of safety to eyesight from the ingestion of much smaller amounts of the poison. There are many well-authenticated instances in which the drinking of a couple of teaspoonfuls of wood spirits was followed by blindness.

The intoxication of persons from inhalation of the fumes of methylated alcohol is another example of poisoning by small quantities of the intoxicant, because the actual bulk of liquid so absorbed by the lungs and skin must be comparatively small.

The cumulative quality of methylism has been referred to by several writers. This matter will be further discussed in speaking of the pathology of the subject. Meantime our investigations undoubtedly demonstrate that in many instances no marked poisonous symptoms were noticed until twenty-four hours or longer, after the last of a number of doses (usually small "drinks") had been taken. Unlike most poisonous agents that are responsible for acute symptoms, these may not much disturb the patient for a relatively long interval after the ingestion of the poison. Indeed, it may be set down as a rule that, except in persons exhibiting an idiosyncrasy against wood alcohol, or unless a large dose of the poison is drunk within a few hours, not only may the severe abdominal symptoms, the cardiac and nervous collapse and the blindness be postponed, but even the fatal termination has, in some instances, been delayed for several days.

This information, derived from the histories just published demonstrate the fact that there is danger, albeit an unknown degree of danger, to life and eyesight attending the ingestion of *any* amount of wood alcohol. Moreover, while the acute, unmistakable symptoms of the ordinary forms of intoxication enable us to recognize them at once there can be no doubt but that much smaller quantities, taken into the system, as methylated quack remedies, adulterated foodstuffs (Jamaica ginger, "lemon extract," essences), or the secret dram drinking of bay rum, cologne water, etc., may, in persons not immune, injure the digestion and permanently damage the vision.

There are very few poisons that more distinctly exhibit the selective character of the intoxication than wood alcohol. It has again and again been demonstrated that a minority of those who imbibe methylated fluids suffer no permanent damage from them. In other words, many people are practically immune to moderate doses of methyl alcohol. In most cases where small doses are taken serious intoxication means that there is in the poisoned individual an idiosyncrasy against this agent. It is owing to this fact that in times past many perfectly sincere observers asserted, and interested parties loudly proclaimed, the innocence of methyl alcohol. During the trial of the Baltimore suits against Gilbert & Co. a dramatic incident occurred, based on this belief. A chemist drank a quantity of methylated spirits in open court. Of course, we now know that, although this was a dangerous act, the chances were greatly in favor of the witness, especially if at the time his stomach were full of food, or if he took an emetic shortly after the draught of wood alcohol.

Prof. W. A. Puckner, in the *Western Druggist* for December, 1897, wrote:

"The only constituent of wood alcohol likely to be present in sufficient amount to be poisonous is acetone and, since methyl alcohol is comparatively free from this, the preparations now in the market are presumably also free from the poisonous properties ascribed to wood alcohol."

Supporting this proposition, he took internally single, 30 c.c. doses of a commercial wood alcohol containing about 0.5 per cent. of acetone, and experienced no unpleasant results therefrom.

"Further doses of 15 c.c. taken at intervals of thirty minutes until 90 c.c. had been drunk, left the body temperature normal, at first somewhat accelerating, later slightly depressing the pulse—i. e., producing the characteristic effects of ethyl alcohol."

On the other hand, Dr. Reid Hunt[6] of Johns Hopkins showed that, in experimenting on dogs, the latter were all killed by doses of Columbian spirits and other fluids containing methyl alcohol, while animals survived the same and larger quantities of ethyl alcohol and pure acetone.

In considering the actual poisonous agent in the methyl alcohol of commerce, one must not forget the secondary organic compounds formed in the intestines

5. Mass. Pharm. Assn., 1897.

6. Toxicity of Methyl Alcohol, 1903.

and in the blood. It is quite likely that these play an important rôle in the damage inflicted on the system. Prof. C. S. N. Hallberg believes that the untoward effects of methyl alcohol are mainly due to formation of the poisonous formaldehyd.

In respect of its varying toxicity, however, this poison does not differ from many other lethal compounds, paris green, for instance. The effect on the individual, in the case of this arsenical drug, will be largely governed by the amount ingested, the condition of the patient's alimentary tract, whether his stomach is full or empty, whether already irritated by other agents, whether vomiting sets in early or late, and whether absorption of the poison is complete or not. If the conditions are adverse a fatal termination might ensue from a small dose and in a short time; if favorable, the drinker might escape after the ingestion of a relatively large quantity of the poison.

The manufacturers of wood alcohol no longer contend that the internal use of their product is innocuous, but they do deny that any harm arises from its external application, or from its employment in the arts or as a fuel. This contention will be considered later.

The varying effects of methylated fluid on individuals is largely due to idiosyncrasy, exactly as in the case of ethyl alcohol and other poisons. For example, a peripheral neuritis, sometimes associated with blindness (toxic amblyopia), is one of the well-known results of ethyl alcoholism, but it does not so affect every drunkard. That about 50 per cent. of those exposed to the poisonous influences of wood spirit escape permanent damage is now a recognized fact, and this immunity is mostly due to a peculiar resistance inherent in the nervous and digestive apparatus.

Another fact, fully recognized by Reid Hunt in his laboratory studies, is clearly shown in the clinical history of those cases in which the poisoning was brought about by the ingestion of various mixtures containing different proportions of this drug, together with other things. In every instance the toxic action was that of methyl alcohol, as clearly and sharply defined as if nothing but the pure spirit had been consumed. It can, therefore, no longer be maintained that the poisonous effects of Jamaica ginger, lemon extract, bay rum, etc., are due to anything else than the methyl alcohol which some of these preparations are well known to contain.

### PATHOLOGY OF METHYL ALCOHOL AMBLYOPIA.

The irregular onset and variety of the symptoms (especially the eye-signs) set up by methyl alcohol intoxication argues a variety in the lesions produced by it. There can be no doubt but that the ophthalmoscopic changes described in the foregoing case-histories bear out such an idea. In one series, for example, although the blindness was complete, no fundus alterations were discovered except, possibly, slight blurring of the disc outlines, or a faint congestion of the papillary vessels. These are, in all probability, cases of deep-seated retrobulbar optic neuritis, with no changes present in the nerve-head. In the course of time most of these cases suffer a postneuritic atrophy with abundant evidence of the lesion in the pallid papilla.

On the other hand, a well-marked anemia of the nerve is perceptible in many cases of intoxication a very short time after the ingestion of the poison. In this regard wood alcohol acts like quinin. It is a question whether this condition should be called "atrophy," first, because fairly good vision has been recovered in not a few of these cases, and, second, because sufficient time to bring about true atrophic changes had not elapsed since the poisoning. Later on, without possibly any marked alteration in the ophthalmic picture, the sight grows dimmer with the occurrence of veritable optic atrophy.

A third picture is that of a mild papillitis. The outlines of the disc are obscured, the physiologic excavation is filled by an edematous swelling, and the vessels, especially the veins, are distinctly turgescent. Vision will, in these, as in other cases, depend on the extent to which the central bundles of optic fibers are affected. A well-developed neurotic process situated far behind the globe and not discoverable by the ophthalmoscope may result in an early, sudden, complete and permanent blindness, while recovery, sometimes complete, may follow a superficial papillitis or an early blanching of the nerve-head.

These apparent anomalies must not, however, blind us to the fact, certified by all careful observers, that in the great majority of instances of intoxication an early retrobulbar neuritis, whose signs and symptoms shortly improve (with more or less clearing of sight), is the precursor of a genuine postneuritic or secondary atrophy, from which most or all of the patient's useful vision is wiped out.

The lesions in the majority of instances of methyl alcohol amblyopia and amaurosis are local ones—that is to say, they are not secondary to central circulatory or nervous changes. Unlike other forms of toxic amblyopia, e. g., quinin, tobacco and ethyl alcohol, the poisoning is frequently accompanied by scleral and ciliary congestion, tenderness of the eyeball, painful excursions of the globe, pain in the eyes and forehead, and other evidences of an acute inflammation of the orbital or intraocular contents. The exact character of the morbid alterations that give rise to these symptoms and to the blindness probably varies somewhat, according to the severity of the intoxication.

Whatever the primary process may be—whether it affects first the retina and then the optic nerve, or *vice versa*—the final outcome is a rapid atrophy of the fibers of the nerve and retina. Friedenwald, Holden and Birch-Hirschfeld take the former view. They believe that there is a degeneration of the ganglion cells of the retina in general, and of all the percipient elements of the macular region in particular. This metamorphosis of the retinal nervous elements, they agree, is the result of a sudden interference with their nutrition, the result of vasoconstrictor effects of the poison on the retinal vessels. On the other hand, Gifford holds that the orbital pain and ophthalmoscopic evidences of positive neuritis met with in some cases, together with complete blindness, followed by a temporary improvement, indicate a primary affection of the optic nerve. Hotz, who has seen optic neuritis in this affection, considers that if the primary effect were to destroy the central nerve elements of the retina, a partial recovery, followed by a second lapse of visual acuity, would not be likely to occur, but that this would be the natural sequence of a nerve lesion of an inflammatory type, the effusion at first clearing away, with relief to the compression of the nerve fibers; then follows renewed pressure on these with the advent of atrophic changes. Gifford noticed in one case total absence of retinal changes, as seen by the ophthalmoscope, a few hours after the blindness had come on, and holds this to be proof that the primary lesion is not in the retina. On the other hand, De Schweinitz states that in animals experimented on with

methyl alcohol its toxic action is first on the ganglion cells of the retina, and that the optic nerve changes are secondary.

Certainly the early and often complete loss of vision can scarcely be regarded as other than positive proof of profound disturbance in the optic nerve, and the subsequent rapid alterations in the vision, without visible ophthalmoscopic changes in the fundus, seem to point in the same direction. There were changes in the optic nerves in Buller's third case which indicated a retrobulbar neuritis at an early period, but nothing that would justify the assumption of pathologic alterations in the region of the macula lutea.

The whole controversy reminds one of the difficulties that surround the question of the exact nature of the lesions in the amblyopia of chronic (ethyl) alcoholism and in the blindness from tobacco, especially as to whether the optic nerve degeneration, so well described and pictured by Uhthoff and others, is primary or secondary. On the whole, it seems highly probable that the ocular changes in methyl alcohol poisoning are mainly a peripheral neuritis affecting in some cases the nerve trunk only, sometimes the retinal fibers only, and sometimes both these tissues. Occasionally recovery follows, more or less rapidly, in all forms of the disease, but as a rule the changes proceed to entire destruction of the light percipient elements of the parts that had been primarily the site of the neuritis.

The clinical histories in both the recorded and unrecorded cases fully bear out this view of the pathology of methyl alcohol amaurosis. The ophthalmoscopic changes and other symptoms generally correspond to the amount and kind of the blindness, and enable one to foretell their character so far as vision is concerned, but this is not always the case. Recovery sometimes occurs even when evident optic neuritis is present, and, on the other hand, a patient now and then becomes blind when the mirror does not reveal any neuritic changes.

This, however, is less frequently the case so far as concerns the association of white atrophy and permanent blindnes. Sooner or later we find the one in cases that exhibit the other.

### SYMPTOMS OF METHYL ALCOHOL POISONING.

From a study of these cases we may conclude that there are three degrees of wood alcohol poisoning.

1. An ordinary mild intoxication, with perhaps some dizziness, nausea and mild gastrointestinal disturbance, terminating in perfect recovery within a few days, but occasionally followed by more or less serious damage to vision.

2. A toxic effect more pronounced in every way, dizziness, nausea, vomiting and gastroenteritis being conspicuous symptoms. Dimness of vision, often increasing to total blindness, is characteristic of this degree of poisoning.

3. An overwhelming prostration which terminates in coma and death.

The clinical picture of wood alcohol poisoning usually depends on the quantity taken, modified, of course, by the resisting power of the individual. Generally there will be observed the ordinary effects of alcoholic intoxication (vertigo, nausea, gastric discomfort, and general malaise), with disturbance of vision.

The more pronounced cases exhibit headache, muscular weakness, vomiting, dimness of vision, often progressing to complete blindness, with considerable gastrointestinal disturbance, and evidence of depression of the heart's action.

A step further and, with the exaggeration of all these symptoms, the patient becomes suddenly blind, or nearly so, with widely dilated, reactionless pupils, slow respiration, weak pulse, sweating, delirium or unconsciousness, often passing into coma and terminating in death.

It rarely happens that a patient suffering from methylic alcohol intoxication recovers if he once becomes comatose. He almost invariably dies unconscious, or, having regained consciousness, suffers a relapse and death shortly follows.

The characteristic feature in nearly all the severe cases not terminating fatally is bilateral, total blindness, coming on in a few hours, or perhaps not for several days; then a partial restoration of vision, which again in a few days or weeks gives place to more or less complete and permanent blindness, with atrophy of the optic nerve.

Surely this is a picture entirely different from any other known form of intoxication and sudden amaurosis, and it has been drawn by many observers from actual clinical observation over a widespread area. *It is a picture which methyl alcohol alone can create.*

### VISION IN METHYL ALCOHOL AMAUROSIS.

As already noted, vision is frequently good for several days after recovery from the intoxication, when without warning blindness, often total, sets in. After a few days or weeks of darkness the eyesight returns, and the improvement may even be very marked—may, indeed, be almost as good as ever. Yet a relapse is almost certain to occur, and before long the blindness once more returns, and this time, as a rule, is permanent.

The visual field is nearly always contracted, and absolute central scotomata are rarely absent. The pupils are widely dilated and do not respond to light or accommodation. The optic neuritis characteristic of the early stages of methyl alcohol intoxication shows itself in blurring of the optic discs, congestion of the papillary vessels and slight swelling of the nerve head. Later the congestion of the optic papilla disappears and complete atrophy, with a white or grayish nerve head and contracted retinal vessels, is easily made out with the ophthalmoscope.

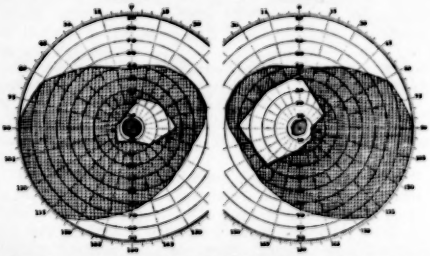
### CASES OF MINOR DEGREES OF INTOXICATION.

The circular letter addressed by Dr. Wood to medical men throughout the country asked for reports of what he termed "partial intoxication," in which it was assumed that the patient escaped with small damage to eyesight—atypical cases exhibiting low degrees of amblyopia, with slight contractions of, or small scotoma in, the visual field. It was thought that, in susceptible individuals, small and repeated doses of this powerful poison might explain eye symptoms otherwise inexplicable. Persons who, unaware of the danger to health and eyesight, indulge in repeated "nips" of Columbian spirits (or of punch or other drinks made with it), methylated Jamaica ginger, bay rum, eau de cologne, or some patent medicine, or who use wood alcohol for "rubbing," or are exposed to the fumes of the poison, might suffer from failing eyesight, "dyspepsia" and headaches, without either themselves or the physician suspecting the cause of the trouble. Beyond an occasional "indigestion" or a mild "bilious attack," nothing might happen to draw the attention of either doctor or patient to the true character of the intoxication or the accompanying failure in vision. That such cases occur is evidenced by several of the published histories. Dr. Albert H. Brundage, president of the New

York State Board of Pharmacy, writes in this particular:

In two other cases where small quantities of wood alcohol were taken there were noticed nausea, headache, slight delirium, dilated pupils, finally developing blurred vision, which persisted on recovery from the other symptoms; also sweating, chilliness and quite marked debility. I have also thought I observed in two cases, where the external use of wood alcohol for "rubbing in" over quite an extensive surface was resorted to, mild but quite distinctive symptoms of a similar character. One of these cases was that of a man about 70 years old, suffering from cardiac dilatation and general debility. The other that of a child suffering from pneumonia. Therefore, the directness of the symptoms were somewhat uncertain. In the case of the old man the effect on vision was quite decidedly referable to the wood alcohol and was never fully recovered from.

That many instances of mild methyl amblyopia have been and are now attributed to other causes there is every reason to believe. The following cases, among a number seen by Dr. Wood and of which he has preserved records, are probably examples of methyl alcohol amblyopia, and yet the evidence is not so convincing that he felt justified in publishing them among the histories in Class B. Doubtless other ophthalmologists will recall similar instances. Whenever a patient presents himself with a history of recent "dyspepsia" or "bilious attacks,"




Figs. 2 and 3.—J. E. B. Field of vision for white. 5 mm. object. Left eye: Absolute central scotoma for white; no field for green. Right eye: Slight blurring of white object at fixation point, more marked on the nasal side.

accompanied by failing vision and central scotomata and the symptoms are not otherwise clearly explicable, poisoning by wood alcohol in small doses should be suspected. One can never tell, without careful inquiry, which of one's patients may be secretly indulging in the delights of the cologne or bay rum bottle, or taking "XXX bitters" or cheap whisky, for his stomach's sake.

Case 1.—G. E. B., patient of Dr. F. W. Cook, Plattsmouth, Neb., aged 40, machinist, was seen in consultation, first by Dr. Harold Gifford of Omaha, and on April 28, 1889, by Dr. Casey Wood of Chicago.

*History.*—Apart from a gonorrhea (from which he entirely recovered) at 25 years of age there is no history of venereal or other general disorder. He has had many attacks of "dyspepsia" during the past few years which has not been treated with success. He does not smoke, but drinks "not much but many things." His knee jerks are unaffected and his pupil reflexes normal, although sluggish to light. Tension normal. On Sept. 28, 1898, he noticed a heavy sensation in both eyes, with some pain, photophobia and dimness of sight. After some decrease in pain and improvement in vision a steady lessening of vision followed, and now he sees "as if through a mist" at all distances. Objects also have a reddish or yellowish appearance.

*Examination.*—V. L. = fingers at 4 feet and Jaeger XX only; V. R. = 20/100, and with glasses words of Jaeger IV at 8 inches. The fundi show clear media, nerve heads gray-white with shallow atrophic cupping, and arteries much smaller than normal. Retinal veins smaller left than right. On the whole, the mirror exhibits fewer signs of optic atrophy right than left. The visual fields (See Figs. 2 and 3) show a well-marked absolute scotoma in both eyes with decided contractions of their boundaries.

Treatment by strychnia, etc., was of no avail.

In view of the history of acute indigestion, the bibulous habits of the patient, the condition of the fundi, the form of the fields, the progress of the disease and the probable exclusion of other causes of amaurosis, Dr. Gifford and Dr. Wood suspected a mild form of methyl alcohol poisoning, although it was not possible to trace the intoxication to its probable origin.

The second case is better defined.

Case 2.—R. F. F., "burner" in a brickyard, aged 43, was referred to Dr. Wood April 19, 1904, by Dr. Seim of Blue Island, Ill.

*History.*—He is a man of good habits and has always enjoyed the best of health and good eyesight until six months ago. Since that time his vision has failed and he has had attacks of severe "indigestion," including vertigo, nausea, vomiting, headache and pain in the stomach. He now has foggy vision for both distance and near, and, suddenly he found he could not read even the coarsest print. On several occasions he has had aching in both eyeballs, when the vision seemed more foggy than before. He also thinks that during the attacks of "biliousness" his sight is worse. A careful examination of this man's urine, blood and internal organs generally show them to be all practically normal. There is no history of rheumatism, gonorrhea or syphilis. He has smoked considerably for several years. Feeling much fatigued by his work he began, six

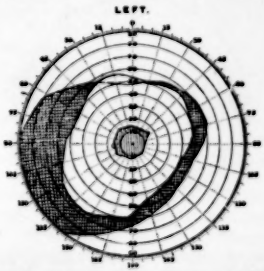



Fig. 4.—R. F. F. Visual field for white. 5 mm. object. Left eye: Central absolute scotoma for white; no field for red.

months ago, to drink wine fortified with various kinds of spirits, especially cheap whisky bought at saloons. Since the attacks of indigestion he has rather increased the amounts and number of these alcoholic potations although the stomachic distress is rather worse than better. On two occasions the drinks of wine and spirits were followed by nausea and vomiting.

*Examination.*—His pupillary and patellar tendon reflexes are about normal. The pupils do not, however, respond quickly to accommodation. V. in each eye is 2/7, and words of Jaeger XIV; no improvement with glasses. The ocular media are clear, but the nerve heads are distinctly grayish and the papillary tissue is woolly, with indistinct edges. No changes in the vessels or retina. The fields of vision were measured at various periods (See Figs. 4, 5, 6 and 7), showing condition when first seen and after a month's treatment.

*Treatment and Result.*—All stimulants were stopped and the patient given pilocarpin sweats, followed by strychnia and iron tonics and large doses of strychnia hypodermically. Vision rapidly improved, so that on Sept. 17, 1904, he had 6/6 and Jaeger I almost, in each eye. A faint central scotoma for red and green can still be demonstrated in each eye. His general health is much improved.

### DIFFERENTIAL DIAGNOSIS.

The picture presented by methyl alcohol intoxication is so uniformly clear and characteristic that, once the attention of the observer has been drawn to it, there

can hardly be any difficulty in recognizing any of the degrees of poisoning. However, as it is only in recent years that the signs of methyl alcohol intoxication could be studied, and as the meaning of its symptom-complex could, consequently, be understood only by a comparatively small number of practitioners, we may be pardoned for a few words on this subject.

When dilated pupils and blindness (total or partial, temporary or permanent) accompanies, or follows shortly after, an alcoholic debauch, the presumption is that the intoxication is due to wood alcohol.

The necessity of better knowledge on the part of physicians generally of the dangerous qualities possessed by wood spirit, in whatever form it may be taken, is well illustrated in the following brief history of a lethal case:

**A physician was called to see a woman, 43 years of age, and found her comatose, fairly good pulse, sighing respiration, widely dilated pupils, and was informed that before his arrival she complained of loss of vision. He suspected uremia and returned to his office for a catheter, being gone about fifteen minutes. On his return she was dead. Some urine was drawn off and found to contain albumin. No autopsy was made, but the cause of death was considered to be uremia, and, no doubt, certified accordingly.**

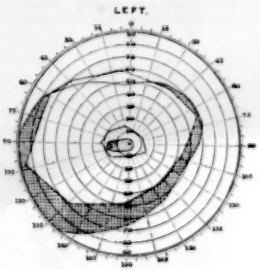



Fig. 5.—R. F. F. Left eye: Field of vision for white and red. Relative scotoma for red, which is seen at the fixation point as dark red.

With slight variations in some of the symptoms, this brief exposition of a sudden and fatal illness is typical. It would be interesting to know how many practitioners could under similar circumstances arrive at a correct diagnosis. Just out of curiosity we have "supposed" this case to many, and so far have not found one who could even guess at its real nature. We have a right to assume, therefore, that many deaths may have occurred in a similar manner, without recognition of the causation. If this be true, thousands of people are daily exposed to the hidden danger which may bring about a similar result.

The fact that death has followed the drinking of spirituous liquor generally means that the deadly fluid was methylated, because, although large quantities of ethyl alcohol may cause death, such a result is extremely rare.

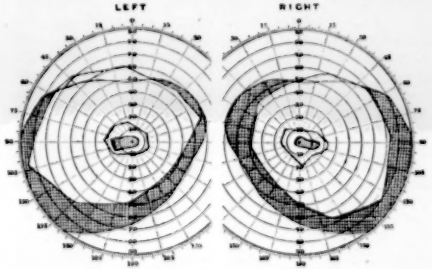
When blindness supervenes after symptoms of severe intoxication, the case might be mistaken for quinin amaurosis, but in acute cinchonism the deafness, ringing in the ears, the intense anemia of the whole fundus oculi, and almost total obliteration of the retinal vessels, serve to distinguish it from methyl alcohol amaurosis.

### MIXED INTOXICATION.

Methyl alcohol poisoning, complicated with other poisons or with systemic diseases capable of producing some of the severer symptoms of methylism are, of course, not so easily diagnosed. Death from uremia in an ethyl-alcoholic, who has recently been imbibing quantities of grain alcohol, might easily be preceded by symptoms simulating wood alcohol poisoning, and it might require an analysis of the stomach contents to determine the cause of death.

In the same way, when a large dose of quinin, administered in cheap whisky or other suspicious alcoholic beverage, is followed by gastrointestinal disturbances, cardiac depression, headache and blindness, it may be difficult to say which of the two intoxicants, possible adulteration by wood alcohol in the menstruum or the quinin (or both), is responsible for the amaurosis. The following case illustrates a difficulty of this sort:

**In May, 1904, Dr. Casey Wood examined, through the kindness of Dr. Oscar Dodd, whose clinic at the Illinois Eye and Ear Infirmary he attended, J. A. B., druggist, aged 33. On Nov. 27, 1903, he had a chill and took, as a remedy for it, three or four ounces of Armstrong's bitters, following this with 8 or 10 grains of quinin and some acetanilid. The same evening his sight suddenly failed and grew slowly worse for three weeks. On Jan. 13, 1904, he was admitted to the infirmary.**




Figs. 6 and 7.—R. F. F. Field of vision for white and red. Right eye: Relative scotoma for red, which is seen as "gloomy" red. Left eye: Relative scotoma for red, which is seen at the fixation point as "dark" red.

*Examination.*—V. R. = light perception; V. L. = shadows. Both pupils dilated. The ophthalmoscopic findings are the same in each eye, viz., disc sharply outlined and very white, lamina cribrosa plainly marked; arteries very small; some disappear a short distance from the disc. The veins are engorged.

*Treatment.*—Treatment, with pilocarpin and increasing doses of strychnia, was given until April 4, 1904, when he was discharged with light perception only in either eye.

When seen by Dr. Wood the retinal arteries were smaller than normal, but not so markedly reduced in caliber as one usually sees in quinin amblyopia; nor were the veins abnormally increased in size—conditions probably the result of treatment—but the nerve-heads were very white and sight was so reduced that it was impossible to outline the visual fields. There was no history of deafness. The remainder of the bottle of "bitters" was examined for Dr. Wood by Dr. Wesener of the Columbus Laboratory. No methyl alcohol was found in the concoction.

### PREVENTION OF WOOD ALCOHOL POISONING.

Notwithstanding all that has been said and written in the last few years in reference thereto, the medical profession experiences difficulty in educating the people in any questions pertaining to public health. It is only by persistent effort on our part that a subject so important as the abuse of methyl alcohol has now become

will ever receive the recognition and attention it deserves, not from the public, but from their rulers, the makers of laws.

Here, then, we have a fair field for the exercise of preventive medicine. It remains to be seen how the evil may best be dealt with. Whenever these cases are brought before medical societies the unanimous opinion has always been that something should be done. So far, however, comparatively little has been done. It would be useless to try and educate the public to the knowledge that wood alcohol is a poisonous substance, since it appears under the disguise of many attractive names, such as Columbian spirits, cologne spirits, colonial spirits, Florida water, Jamaica ginger, lemon essence, essence of peppermint, etc., names intentionally misleading, and in no way suggesting the nature of the liquid, which, moreover, is further concealed by methods which remove most of its naturally unpalatable qualities.

Moreover, this new (1896) and distinct form of poisoning by a substance so widely and indiscriminately used in arts, trades, manufactures, and even in the preparation of many articles intended to be taken internally, either as food, condiments or medical preparations, is chiefly dangerous in consequence of new methods of manufacture, so cunningly devised that there is now produced a harmless-looking, and even palatable, fluid which unfortunately retains all the dangerous qualities of the crude and essentially repulsive form previously in general use.

Individual effort has done something in the way of reform. We might refer particularly to the work in this direction of Dr. Swan Burnett of Washington, D. C.; Dr. Joseph White of Richmond, Va., Dr. Harold Gifford of Omaha, Dr. H. Dickson Bruns of New Orleans, and many others.

Dr. Frank Buller has urged that in addition to, or as a substitute for, the poison label, the notice, "this fluid, taken internally, is likely to produce blindness," appear on each package. This label would be even a more effective warning than the word "Poison" and the pictured skull and crossbones familiar to us all. All of them would not be out of place under the circumstances.

In this connection it is of particular interest to know why there are so many cases of methyl alcohol poisoning in the United States and practically none in other countries. The explanation lies in the fact that a more palatable form of the drug has come into general use in this country; that, consequently, it is taken in larger quantities. This view is sustained by information obtained in regard to its use abroad, as in the contribution of J. C. McWalter to the *State Journal of Medicine*, in London, England.[7]

He states that the "methylated spirits" of commerce (in England) is a compound containing only 10 per cent. of wood naphtha, 2 per cent. of mineral oil and 64 per cent. of absolute alcohol. So long as its composition conforms to this formula, there is absolutely no legal restriction as to its sale, provided the seller obtains a license costing 10 shillings a year. He points out that this spirit contains a combination of three powerful intoxicants, capable of producing intensely greater effects than the most virulent form of raw whisky. Yet so unattractive is it as a beverage that no cases of poisoning result from its use.

He estimates that there are in Great Britain and Ireland about 10,000 retailers of methylated spirits, and that three and a half millions of gallons are consumed annually; possibly half of this is used for legitimate purposes, as polishing, dressing, etc.

McWalter believes that he has discovered a growing tendency to use even the nauseating (British) methylated spirits as a drink for securing intoxication, and thinks its employment for such a purpose should be controlled by legislation; he suggests making it absolutely undrinkable by adding naphthalin. He also suggests placing it on the list of poisons, so that it can be sold only by licensed druggists, duly labeled as poison. In spite of this alleged use of methylated spirits as a drink, he does not allude to any ill effects on vision. He thinks that sometimes cirrhosis of the liver, splenic enlargement and albuminuria may occur in consequence of its abuse.

As before stated, the manufacturers of the various forms of "deodorized" methyl alcohol regard their products as poisonous when taken internally, and packages sent out by them are, as a matter of fact, labelled "not to be taken internally," but this notice, even if it occupied a more prominent place on the bottle than it generally does, is usually offset by the recommendations on and the harmless air imparted to the rest of the label. It is quite incompetent to protect the man in search of "any kind of alcohol for a drink."

The immunity of foreign countries from methyl alcohol intoxication gives us our clue to the only effective prophylaxis. No labelling of bottles and packages will guard against the evil effects of this powerful poison one-tenth as effectually as adding to it naphthalin or some other pungent ingredient in such quantities as, in the case of the corresponding German and British article, will prevent its employment for any of the poisonous purposes indicated in this investigation. As long as we allow deodorized wood alcohol to be sold in its present shape, just as long will we have the usual record of death and blindness from its entrance into the bodies of human beings. The reader will readily perceive that "deodorized" wood alcohol has no legitimate place in commerce. Its mere existence must always be a menace to the lives and eyesight of the community. As in Europe, safety lies in an untaxed mixture, for commercial uses, of ethyl alcohol, with some nauseous protective agent, corresponding to the "methylated spirit" of Great Britain and the "Brennspiritus" of Germany.

### TREATMENT OF METHYL ALCOHOL POISONING.

The conduct of some of the cases has been outlined in the foregoing reports. There does not seem to be any antidote to the poison in the common acceptance of that term, but one's efforts, if the case be seen early, should be directed to getting rid as promptly as possible of the poison from the alimentary tract, and so to prevent its absorption. Whether vomiting has set in or not, there seems no reason why careful use should not be made of the stomach pump, with an oily emulsion as a diluent. The subsequent treatment should be directed to the symptoms.

Lieutenant R., who recently had considerable experience in the treatment of five cases at Fort Terry, in which there was one complete recovery (neither death nor blindness), reports it as follows:

Private J. F. W., aged 27 years, was found on duty at the post exchange at the same time the other patients were found in their quarters. Though showing the effects of alcohol, he was able to go about his duties (cooking). He was sent to

7. Vol. x, 1902.

the hospital, or, rather, carried, though he had walked to the quarters from the canteen, about 100 yards, a few minutes before. This man had sense enough to tell the truth; he admitted that he had taken about a pint of Columbian spirits, and also a pint of bay rum in addition, the "alcohol" on the day before and the bay rum on the 29th. When his fears had been sufficiently quieted, he was given 44 c.c. of oleum ricini, which only caused more vomiting than he had already experienced, of a mawkish, bay-rumish-acid smelling fluid. This was followed by 30 c.c. of whisky, and the dose continued every hour. Next morning the bowels were opened with enema. Temperature on admission (29th), normal; pulse, 68, soft; temperature during night varying from 97 to 99. Sleepless; complained of precordial pain and oppression and sense of impending danger. Next morning, condition fairly good; still complained of pain around heart, in bowels and in region of kidneys. General condition continued to improve on the whisky and strychnia treatment, though the pain around heart and weak pulse continued to a slight extent for two or three weeks. Returned to duty about the fifth day, but kept on strychnia for two weeks longer. The fact that this man told the truth about the affair, and thus was enabled to get most of the poison out of the alimentary canal, is, no doubt, the reason he is alive. Present condition, normal.

Dr. R. would call particular attention to the fact that none of the three deaths occurred within twenty-four hours of the ingestion of the poison, but took place in from twenty-eight to sixty hours thereafter. This long range (as to time) effect renders the stuff a most dangerous poison, for the reason that there seemed to be a paralyzed condition of the bowels, due, doubtlessly, to the methyl alcohol. It is the belief of Assistant Surgeon R., from his experience of five cases of poisoning, that methyl must be replaced by ethyl alcohol, in order to combat a collapse and sustain the patient's vitality. This, with the speedy clearing out of the poison from the alimentary canal and the continued stimulating and supportive treatment for several weeks, should constitute the principal aim in treatment.

Dr. Albert H. Brundage, who has had experience of several patients, thinks the acute, severe cases should be treated by thorough siphonage of the stomach, cold affusions to the head, cardiac stimulants, pilocarpin injections, inhalations of oxygen, external heat to body and extremities, moist heat over the kidneys, rectal injections of hot coffee and normal salt solution.

The treatment of the optic atrophy is not very satisfactory in the severe cases, although the use of pilocarpin, sweat baths and potassium iodid (as soon as the patient's condition permits) during the early stages of neuritis, followed by strychnia in full dose hypodermically, seems to have been beneficial in some instances by limiting the extension of the secondary atrophy.

## CONCLUSIONS.

We believe that a study of the case histories in this investigation justify us in drawing the following conclusions:

1. Methyl, or wood alcohol, in any of its forms, as well as all methylated preparations made from it, are dangerous poisons, menacing both life and eyesight.

2. It is best known to us in its deodorized form as Columbian spirits, purified wood alcohol, cologne spirits, colonial spirits, standard wood spirits, union spirits, eagle spirits, green wood spirits, and a variety of other fluids.

3. It is used as an adulterant of, and substitute for, grain alcohol in cheap whisky and other alcoholic beverages, not to mention Jamaica ginger, lemon extract and many other essences and flavoring fluids.

4. Methyl alcohol is largely used in the preparation of many proprietary and patent medicines, witch hazel, domestic liniments, as well as bay rum, cologne water, Florida water and other perfumes.

5. To this date, at least 153 cases of blindness and 122 deaths have resulted from this poison; in all, 275 instances of lost life and eyesight. This total would probably be raised to 400 if a more thorough search were made.

6. The injury to the ocular apparatus consists chiefly of a destructive inflammation of the optic nerve fibers or retinal elements (or both), followed by their atrophy.

7. The symptoms of poisoning are gastrointestinal disturbances, more or less severe, accompanied by abdominal pain, general weakness, nausea, vomiting, vertigo, headache, dilated pupils and blindness. If recovery does not occur, there is marked depression of the heart's action, sighing respiration, cold sweats, delirium, unconsciousness, coma and death.

8. The blindness is bilateral and may set in a few hours after the inhibition of the poison, or it may be delayed for several days. It is generally complete, with a subsequent improvement, and, finally, a relapse into permanent blindness.

9. The visual fields are contracted and exhibit absolute central scotomata. The ophthalmoscope reveals at first a congested nerve-head, followed by grayish or white atrophy and contracted vessels.

10. The diagnosis can hardly be mistaken. Methyl alcohol poisoning presents a picture unlike that of any other intoxication. Acute abdominal distress, followed by blindness, should always awake a suspicion of methyl alcohol poisoning.

11. The prevention of poisoning by this insidious drug can only be brought about by prohibiting the sale of "deodorized" wood alcohol in all its forms. The number of deaths may meantime be limited by putting all methylated preparations on the list of poisons and prosecuting all persons adulterating foods and drinks with it. Labelling it with the notice, "This fluid, taken internally, is likely to produce blindness," will certainly have a deterrent effect.

12. Methyl alcohol intoxication is an example of idiosyncrasy. As in the case of several other poisons, some persons are largely immune so far as permanent damage to the organism is concerned. If ten persons drink, say, four ounces of Columbian spirits within three hours, all will have marked abdominal distress and four will die, two of them becoming blind before death. Six will eventually recover, of whom two will be permanently blind. With still larger doses, the proportion of death and blindness will be greater.

13. Poisoning by inhalation of the fumes of methyl alcohol generally occurs when the exhalations are mixed with rebreathed air, as in varnishing the interior of beer vats, small rooms, etc. It is also highly probable that in susceptible subjects repeated or even single methylated "alcohol rubs" may produce poisonous symptoms, through absorption of the spirit by the skin.

14. Chronic (or partial) poisoning from methyl alcohol (in the shape of "nips" of methylated Jamaica ginger, bay rum, punch made with Columbian spirits, etc.) is the most insidious and probably not an uncommon

form of intoxication. Its symptoms are not so pronounced or so easy of recognition as in the acute form, but the eyes, digestive apparatus and nervous system undoubtedly suffer.

15. The use of ethyl or grain alcohol in the arts, as in the manufacture of varnishes, as a burning fluid, for "stiffening" hats, lacquering brass, etc., is without danger to life or eyesight. By adding to it a small percentage of naphthalin, for example, the fluid would be undrinkable. A combination of ethylic alcohol with 10 per cent. of wood spirit would answer the same purpose. Such a mixture is the "methylated spirit" of Great Britain, where not a single case of acute poisoning or amaurosis from methyl alcohol is recorded, in spite of the extensive commercial use of methylated preparations in the British Isles.

16. The treatment of methyl alcohol intoxication consists chiefly in getting rid of the poison from the stomach and intestines by means of the stomach-pump and rectal injections; stimulants, especially ethyl alcohol, strychnia and coffee; heat to the body and extremities.

17. The treatment of the amaurosis is unsatisfactory. In the early stages pilocarpin and potassium iodid; later, strychnia hypodermically and by the mouth.

**Editor's Note: This concludes the report save for the tabulated summaries of the cases previously published elsewhere, which will appear next week.**

## REFLEX APNEA AND CARDIAC INHIBITION IN OPERATIONS ON THE RESPIRATORY TRACT.*

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The following case, reported elsewhere by one of us,[1] gives some idea of the practical importance of this subject:

**In 1900 one of my students came to me for an explanation of certain curious phenomena that occurred during massage of an epithelioma of the lower lip. It was about 1 1/4 inches in diameter and surrounded by an indurated area. The center was very sensitive. When this part was massaged the patient cried: "Don't cut my wind off! You are choking me!" He gripped the chair and grew dark in the face, breathing hard, with a pulse of 100, subsiding quickly to 20; respiration about 12. Massage next day caused the same alarming symptoms.**

No doubt it was a case of reflex inhibition caused by mechanical stimulation of the abnormally sensitive endings of the trifacial.

Reflex inhibition has not received from laryngologists the attention it deserves. The text-books do not refer to it, and yet it is a subject familiar to most general surgeons and physiologists. It seems worth while, therefore, to discuss in a brief way the subject as a whole. We would call attention to the value of inflation of the lungs when death seems imminent from cardiac inhibition.

### CAUSES OF INHIBITION.

Reflex inhibition of heart and respiration is caused in the following way: Afferent impulses, following irritation of the trifacial and sensory branches of the vagus (superior laryngeal and pulmonary), are carried to the cardioinhibitory center in the medulla. This center is thrown into greater activity, and strong inhibitory impulses are sent to the heart. At the same time the respiratory center is so acted on as to cause a cessation of respiratory movements, until the accumulated carbon dioxid again drives it into action. The consequent inflation of the air vesicles of the lungs then reflexly lessens the activity of the cardioinhibitory center,[2] and in this way inhibition is overcome.

Inhibition of this kind must not be confused with syncope or shock, for syncope is due to a sudden vasodilation; the blood, from gravity, collects in the abdominal viscera and dependent parts of the body, and loss of consciousness ensues from cerebral anemia. Inhibition following trifacial and superior laryngeal irritation, on the contrary, causes a reflex stimulation of the vasoconstricting mechanism and is not necessarily associated with loss of consciousness.

Of course, reflex inhibition can be produced by irritation of other sensory terminals than those in the respiratory tract; it frequently occurs in operative procedures on the trifacial area about the lips,[3] teeth,[3] eye[4] and ear.[4] As this paper will deal with the respiratory tract only, we can now take it up in detail.

*Nose.*—Those who have inhaled strong ammonia know that it is several minutes before they can get their breath, or, technically speaking, before the inhibition of respiration passes off. Also, in etherizing rabbits, it is noticed that as soon as ether is applied to the nose the animal stops breathing over a more or less prolonged period. At the same time the heart is markedly inhibited—in fact, almost stopped. This reflex inhibition is also produced when applications of irritating solutions, e. g., dilute sulphuric acid, are made to the turbinates. Such result was observed by Kratschmar,[5] who experimented with tobacco smoke as an irritant. Quite frequently in operations on septum reflex inhibition will cause a patient to suddenly feel faint, "lose his nerve," although, the tissues being cocainized, he experiences no pain. Some of these cases can be ascribed to psychical causes, a few to the cocain[6]; indeed, it is apparent at once that a large percentage of cases of so-called cocain idiosyncrasy may properly be ascribed to reflex inhibition. Doubtless many of the deaths occurring in primary anesthesia can also be attributed to this cause. The effect of slight irritation of the nasal terminals of the fifth nerve is illustrated by the following case:

**John C., aged 10 years. Acute purulent rhinitis. Pulse before examination, 100. During cleansing of nasal mucosa pulse fell to 66. Inhibition gradually decreased as cocain was applied.**

*Rhinopharynx.*—The rhinopharynx is also very sensitive to reflex inhibition. Applications to this region produce in some instances a momentary catching of the breath, and in the removal of adenoids a marked slowing of the pulse almost invariably occurs when the instrument—forceps, curette or finger—is introduced behind the soft palate.

**Case 1.—Edward C., aged 3 years. Adenoids operated on under ether. Before operation pulse was 145. No change in pulse occurred during removal of faucial tonsils; respiration was, of course, interfered with. The pulse immediately afterward**

* Read at the Fifty-fifth Annual Session of the American Medical Association, in the Section on Laryngology and Otology, and approved for publication by the Executive Committee: Drs. G. Hudson Makuen, George L. Richards and John F. Barnhill.

1. Good: American Medicine, Aug. 23, 1902.
2. Sitz. d. k. akad. Wissensch., vol. lxiv, p. 11.
3. New Orleans Med. and Surg. Jour., 1850.
4. H. O. Reik: Trans. Amer. Otolog. Soc., 1903.
5. Sitz. d. k. akad. Wissensch., vol. lxii, p. 11.
6. Harland: Philadelphia Med. Jour., May 23, 1903.

went up to 168. When forceps were used in the rhinopharynx the pulse suddenly slowed, and for 40 seconds remained about 90, at times running as low as 72 per minute. After operation the pulse ran up to 150.

CASE 2.—Dorothy T., aged 4 years. Adenoids removed under ether. Pulse before ether was applied, 120; under anesthesia it rose to 172; just before operation it was 160. During manipulations in postnasal space pulse fell to 66, increasing at once as soon as the instrument was removed. Three minutes after operation the pulse was 136. Two hours later it was 124. Respiration was also interfered with during operation.

CASE 3.—Josephine C., aged 8 years. Adenoids removed under ethyl chlorid. Before anesthesia pulse was 125. During early stages the pulse suddenly fell to 96 and respiration ceased for a short time (probably due to cold ethyl chlorid vapor irritating the air tract). Later, when relaxed, the pulse was 120. During the removal of the adenoids the pulse was irregular, faulty, and 75 per minute. There was clonic spasm, similar to that seen in rabbits when the nasal or laryngeal mucosa is irritated. After operation the pulse was 120; five minutes later, 116; ten minutes later, 105.

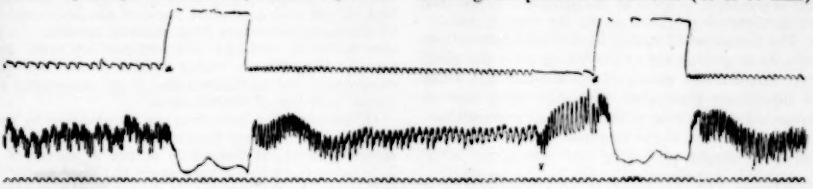
In order to eliminate error due to individual fault of operator the following cases, operated on by Dr. Grayson, were studied with his permission:

James M., aged 8 years. Adenoids, under ether. Before anesthesia pulse was 110; before operation it was 180. Child completely relaxed. Manipulations in rhinopharynx caused pulse to fall, first to 96, later to 75. After operation it rose rapidly to 160; ten minutes later it was 132.

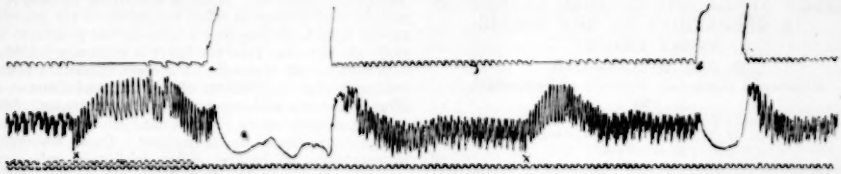
Jane R., aged 8 years. Adenoids under chloroform. Pulse before anesthesia, 160; under full relaxation, 120. During operation it fell to 72. Immediately after operation it rose to 150.

There seems to be no choice of anesthetic so far as cardiac inhibition is concerned.

*Larynx.*—We have found by experimental irritation of the laryngeal mucosa of rabbits with dilute sulphuric acid that reflex inhibition arising from the larynx is accompanied by a rise of blood pressure, unless the irritation is particularly well marked, when there may be a slight fall. If inhibition is prevented by division of both vagi the pressure is increased (40 to 70 mm.).



Tracing 1.—These tracings are one-fourth actual size. Upper line is the respiratory curve; at "a" and "b" the lungs were inflated with a pressure of 40 or 50 mm. mercury. The middle line is the blood pressure with the cardiac pulsations. The lower line is the seconds marked and zero pressure raised 25 mm. Tracing 1 is from a rabbit (morphin. gr. 1/3, injected hypodermatically). Dilute $H_2SO_4$ had been applied a few moments before to the nasal mucosa. At "x" it was reapplied. At "x" the apnea and cardioinhibition are well marked. As soon as the lungs are inflated the blood pressure falls and the heart begins to beat rapidly, the cardioinhibition returning as soon as the inflation ceases.



Tracing 2.—Rabbit (morphin. gr. 1/3, inj. hypoderm.). The animal was recovering from the effect of a previous stimulation of the nasal mucosa, when at "x" dilute $H_2SO_4$ was again applied to one nostril, and about 90 seconds later to the other nostril. The cardioinhibition in both cases is well marked and the blood pressure is increased; as soon as the lungs are inflated the heart commences to beat rapidly and the pressure falls at least 50 mm.

Tracing 3.—Rabbit (morphin. gr. 1/3, hypoderm.). Dilute $H_2SO_4$ applied to the nasal mucosa with the usual marked cardioinhibition, in this case from 250 to 40 beats per minute. The release from inhibition by inflation of lungs can not be made out in this tracing on account of reproduction being small.

Crile[7] has shown that irritation of the larynx, forcible dilatation of the pharynx and violent traction on the tongue will each cause reflex inhibition, and even death. He states that in 156 intubations inhibition was encountered six times, twice with fatal results. Simple obstruction causes cyanosis and a full pulse, whereas inhibition is characterized by pallor and by a slow, weak pulse—diagnostic signs of considerable importance.

Irritation of the trachea causes little or no reflex inhibition. However, in the rabbit, at least, cardiac slowing

7. Crile: Surgery of the Respiratory Passages, THE JOURNAL A. M. A., Feb. 22, 1902.

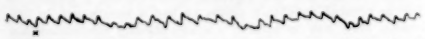
is at times observed when a tracheotomy tube is placed in position, especially when the tube is rather large.

*Lung.*—Brodie and Russell[8] have shown that electrical irritation of the pulmonary vagal fibers, or irritation of their terminals in the alveoli, with irritant vapors, causes marked cardioinhibition, apnea and vasodilation. Their results we have been able to confirm on rabbits by injecting small amounts of dilute sulphuric acid into the alveoli through the chest wall. McWilliams[9] caused well-marked cardiac inhibition in eels by irritating the gills, which have the function of lung alveoli. A case in point is reported by Brodie and Russell[8] of a child that died on the withdrawal of a hypodermic needle that had been introduced two inches into the lung in a vain search for pus. "The heart stopped at once; breathing continued for a short time, aided by artificial means. In another case[10] death occurred after a few inhalations of ether. The fatal result was ascribed to irritation of lungs rendered abnormally sensitive by disease (multiple carcinoma).

The subject of this paper is one that invites to further study and elucidation. Enough has been given, however, to suggest the possible dangers that attend all operations on the air tract and to explain some of the causes in which heart failure and death have followed unexpectedly from what seemed insufficient causes. It is only necessary in this brief outline to say a word further on prevention and treatment.

### PREVENTION.

We can not hope to prevent reflex inhibition in every case. Atropin is the one drug given internally that, theoretically, is of value. It paralyzes the peripheral cardio-



Tracing 4.—Sphygmogram. W. Z., aged 3 years, adenoids removed. The pulse fell from 140 to 80 when instrument was introduced into rhinopharynx. x, Operation commenced.

inhibitory ganglia in the heart, thus preventing cardiac inhibition, which is the most important indication, for apnea can be controlled by artificial respiration and lung inflation. Atropin must be administered early and in full dose to insure its absorption before ether is given or operation begun.

General anesthesia, when complete, prevents inhibition by abolishing the reflexes, but it is dangerous to abolish all the reflexes. Of the anesthetics ether is safer than chloroform, and probably safer than ethyl chlorid. Cocain, applied locally, prevents inhibition when the anesthesia is complete. In the larynx absorption is slow, and it can be used without much danger of toxic effect; in the nose the amount must be guarded. It is not always practicable to get cocain to penetrate deep enough, and when sawing through spurs on the bony septum inhibition will occasionally occur, even though the mucous membrane itself is insensitive.

Before ether is given a preliminary spray of 1 per cent. cocain, with 1 to 10,000 adrenalin chlorid,[11] into the nose and throat prevents not only irritation, congestion and excessive secretion, but also lessens the tendency to reflex inhibition. Applied with an applicator to the rhinopharynx, it is still more effective. Strychnin should probably not be given; it can not be expected to prevent reflex inhibition, as it increases the normal reflexes and, according to Wood, probably stimulates the cardioinhibitory mechanism.

### TREATMENT.

Treatment will vary with the severity of the symptoms. Usually a temporary withdrawal of the cause of irritation will suffice. In severe cases one can hardly rely on atropin, even if given hypodermically, as ten or fifteen minutes will elapse before it is absorbed. The prone position and artificial respiration, gentle traction on the tongue, etc., should be at once resorted to. If these prove without effect, then inflation of the lungs by mouth-to-mouth insufflation or with a bellows, keeping the lungs distended for five seconds, and repeating until the patient is revived. The value of this procedure has been demonstrated again and again. In a series of experiments on cats and rabbits (under morphin, inhibition having been induced by applications of sulphuric acid to the laryngeal or nasal mucosa), inflation caused the cardiac inhibition to at once cease, and the heart tended to beat even faster than normal. Hering[2] has shown that in normal animals moderate inflation (40 to 50 mm. of mercury) of the lungs causes a marked increase in the number of heart beats. He believes that the sensory nerves of the lungs stand in the same relation to the cardioinhibitory center as the nervus depressor does to the vasomotor center. In other words, irritation of sensory endings in the lungs by inflation causes, reflexly, a decreased activity of the cardioinhibitory center and a consequent increase in the number of heart beats. Jackson,[3] in a case of marked reflex apnea and cardiac inhibition from trifacial irritation, resuscitated his patient by mouth-to-mouth inflation. "The effect was instantaneous; the chest expanded, the eyes opened, a sigh was breathed, and the heart pulsated a few seconds. The insufflations were repeated until the functions were re-established. There was another attack in the afternoon, without unconsciousness. She was restored by insufflation by her husband."

### CONCLUSIONS.

Any part of the air tract, when irritated, is apt to produce reflex apnea, cardiac inhibition, and even death. Usually this can be prevented by the administration of atropin, by having the patient completely anesthetized before operating, when general anesthesia is used, and by the use of cocain locally. If severe inhibition does occur we have in moderately forcible inflation of the lungs a most valuable means for relieving this dangerous condition.

### DISCUSSION.

Dr. G. Hudson Makuen, Philadelphia, said that the whole subject of reflex disturbances originating in peripheral irritation of various portions of the respiratory tract furnishes a fertile field for conjecture and speculation. Opinions differ with regard to it; some think that there is no such thing as a reflex neurosis, while others class almost all nervous symptoms in this category. When skilled neurologists, such as Dana of New York, openly declare that they find no special pathologic relationship existing between the mucous membrane of the nose, for instance, and the general nervous system, we must pause and think before making contradictory statements or advancing opposing theories. Dr. Makuen said that the cases reported show the effect of peripheral irritation of the respiratory mucous membrane on the heart. It would be interesting to note whether the rate of the pulse is actually diminished by placing the curette in the vault of the pharynx in all or only in selected cases. Dr. Makuen said also that an inspiratory crowing sound always takes place in one of his patients whenever any topical application is made to the mucous membrane of the nose, and that such phenomena are not surprising when we con-

8. Jour. Phys., vol. xxvi.
9. Jour. Phys., vol. vi.
10. Lowe: British Med. Jour., 1877, vol. ii.
11. Edward Martin: Proc. Philadelphia County Med. Soc., March 31, 1903.

sider the complexity of the network of nerves in this region. A reflex arc, in its simplest form, consists of an afferent sensory nerve, an efferent motor nerve and a cerebrospinal center or ganglion, which latter may also be connected with the higher cortical centers of the brain and to some extent controlled by these centers. It is only by keeping in mind the structure and functions of this arc that we can understand or explain the nervous phenomena that may occur during an intranasal operation. It is probable that no untoward symptoms will arise during such operations, provided the reflex arc is in good condition functionally and organically, and it is only when this reflex arc is impaired in whole or in part that we are liable to meet with accidents. Take a patient having what we call an unstable nervous system and prepare him for intranasal operation. He probably goes through several days of anxious thought about it. Cocain is then applied, the mechanical effect of which is sufficient in some cases to cause immediate disagreeable symptoms, and the systemic effect, a little later, coupled with the psychic impulses arising from the fear and dread of the operation, are often sufficient to cause the patient to collapse. When the operation is begun the patient grows pale, breaks out in a perspiration and, to use the common expression, faints. Is this collapse due to cocain poisoning, to some psychic impulse of the brain, or is it the result of cardiac inhibition from the mechanical effect of the operation? This differential diagnosis is important. If the cause is found in the heart we should use more cocain. If it is the result of cocain poisoning then we should diminish the amount. The time may come when we shall be able to determine definitely just how much cocain may be used in a given case.

DR. GEORGE L. RICHARDS, Fall River, Mass., said that he had operated on a child of 6 years for adenoids. The child was etherized by an expert nurse and yet cyanosis and complete apnea resulted before the operation was begun. The mouth was forced open with the finger and afterward artificial respiration was performed until at length a gasp came. The operation was completed without further anesthesia. He considered the facts that the adenoid was large and practically filled the nasopharynx and that the child was a mouth breather, as the explanation. When the anesthesia was complete there was complete closure of the mouth with resulting asphyxia.

DR. S. SOLIS-COHEN, Philadelphia, said that he avoids apnea from anesthetics by having the nostrils closed by the assistant before administering the anesthetic, and that he also avoids the use of anesthesia in operations on the air passages wherever it is possible to do so. In tracheotomy the patient loses his breath for a moment or two after the larynx is opened, and in removing growths from the trachea, irritation of the posterior wall of the trachea will sometimes affect respiration.

DR. EMIL MAYER, New York City, said that it would be of interest if Drs. Harland and Good would throw some light on why certain people are especially susceptible to this form of cardiac inhibition. We have known for a long time that it is to be looked out for, especially when chloroform is being used. The only death Dr. Mayer ever saw from chloroform was in a laryngologic case with a foreign body in the larynx. Adrenalin is of great value in cases where there is great danger of collapse. It should be added to the list of remedies recommended.

DR. E. PYNCHON, Chicago, divided the subject into two parts, because the prostrations which occur with general anesthetics are generally different from those resulting from cocain. In general anesthesia the patients are usually at a hospital where assistance can be had, while prostrations from cocain most often occur at the office, when no one else is present. In fifteen years' use of cocain, Dr. Pynchon had had his share of prostrations, but no deaths, and in several cases the prostration was considerable. He has frequently applied cocain to the fauces in strong solutions with a cotton applicator, and has never had prostration from its use in this locality and in this manner. Collapse has always occurred while applications were being made to the nose or when injected about the tonsils hypodermatically. Prostration was not due so much to the effect of the cocain as to the irritation of the nasal mucous membrane. He mentioned the case of a healthy girl of 18, who had been operated on several times, the tonsils and ridges from the septum having been removed. Applications of cocain had in each case been made without any unfavorable manifestations. Lastly, there remained one other condition which demanded operation, and in cocainizing the middle turbinal a small applicator was pressed in between it and the septum. She had epileptiform convulsions, differing materially from cocain prostration. Some time afterward he attempted to repeat the operation, using a weaker solution of cocain, but the introduction of the probe in the same manner produced the same results.

DR. R. C. MYLES, New York City, said that it is difficult to account for these idiosyncrasies. It has always seemed to him that there was some condition of shock. The most difficult case he had ever had was that of a man on a football team, and he tried seven times before he was able to do the operation. The patient was an athlete of the higher order, but could not face the idea of having an operation performed. This condition is not confined to any one class of individuals; the point is to watch the patient and by studying him try to anticipate the result. Tracheal injections sometimes produce the same condition. Dr. Myles said he had injected solutions of vaselin into the trachea with the same results as from cocain. Whenever he has occasion to try it now he first tests the case, especially if it is to be an application to the trachea, under a general anesthesia, and is particularly careful, because he once lost a patient on the table and could never account for the death. The patient was frightened. The anesthetic was administered by an expert. Investigation shows that the majority of deaths from anesthesia occur in operations about the throat, and a little preliminary tickling of the mucous membrane is the thing to do as an experiment.

DR. C. M. COBB, Boston, said that, in the removal of adenoids, he had had patients do almost everything except die, and that he did not feel justified in submitting a patient to ether in adenoid operation unless he had a mouth gag in use. It saves time lost in forcing a spasmodically contracted jaw open, possibly two minutes. It is just as easy to put the mouth gag in and have absolute control of the patient, and it may save the patient's life in an emergency. These adenoid patients are doing business on a small amount of oxygen, and the slightest disturbance of the mucous membrane makes them close the mouth and they can not breathe through the nose. Since he has adopted the practice of instructing the house physicians to put in a mouth gag as a routine measure he has had much less trouble.

DR. B. R. SHURLY, Detroit, said that we are coming to use nitrous oxid more and more, and that it deserves a much wider use. He asked if any use of it has been made in the experiments.

DR. W. H. GOOD, said that it is very easy to prove this cardiac inhibition on rabbits by applying irritants such as ether to the nasal mucosa. The heart, normally beating at the rate of 300 a minute, immediately falls to about 60 a minute. Inflation of the lungs removes this inhibition, the heart running rapidly up to 300 beats or more a minute. In cardiac inhibition the thing to try first is simple inflation of the lungs for four or five seconds, repeating until the heart recovers. The apnea can be overcome by artificial respiration. It is the cardiac inhibition that kills these patients. The heart of a patient from whom a dentist was removing a carious tooth suddenly stopped, and after trying a number of things, he inflated the lungs. The heart started to work, but again stopped, and he repeated the process. The next day the cardiac inhibition returned without the loss of consciousness. The patient was at home, and the husband, who had been present at the dentist's office, blew into his wife's lungs and she recovered. Dr. Good said that adenoids make a very sensitive pharynx, and ether could have caused the condition without the blocking of the passage; he said he was unable to answer the query in Dr. Mayer's case. Adrenalin to be of service should be given intravenously, but he did not think it would overcome any of the indications. It causes increased blood pressure, but that is already present and it does not de-

crease the cardiac inhibition. He said that clonic convulsions almost invariably result from irritation of the mucous membrane of rabbits. Nitrous oxid had not been used in any of the experiments. When a patient is under the influence of any anesthetic this inhibition may occur. With cocain the sensory endings of the nerves are paralyzed and inhibition does not occur. Using cocain locally and giving a dose of atropin to paralyze the peripheral ends of the vagus in the heart prevents inhibition.

## THE RADICAL TREATMENT OF NON-STRANGULATED INGUINAL HERNIA FROM THE STANDPOINT OF THE MODERN SURGEON.

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It has been well said that, owing to the anatomic construction of the inguinal canal, the occurrence of rupture in the human species must have been coeval with the appearance of man on the globe, and this being the case, it would not be preposterous to assume that to some early descendant of Adam belongs the credit of having invented the first crude retention apparatus.

In accordance with the trend of modern thought on the descent of man, we may with propriety consider this tendency to hernia on the part of the human race as one of the penalties resulting from the action of Adam and Eve in abandoning the quadruped method of progression of their immediate simian progenitors, and assuming the erect carriage which has since characterized the human family. The erect posture has certainly placed man, with his weakly constructed inguinal canal, in the very best position for the gravitation of a coil of the intestine into a patulous internal abdominal ring, and for its being forced through the opening and into the canal during strain of the abdominal muscles.

### THE FIRST SUCCESSFUL METHOD OF CURE.

From the earliest times until the present day men of advanced ideas in our profession have persistently pursued the chimera of the radical cure of hernia, with ignominious failure as the constant reward of their efforts, and the treatment of hernia has, until the very present, continued to be the greatest opprobrium of those posing as the healers of the ills of humanity. Suffering mortals have continued to die from strangulated hernia with persistent regularity, and the coffers of the truss makers have grown full to overflowing. It remained for the surgical genius of the present day to devise a safe and permanent radical cure for this distressing and common infirmity, and from the publication in December, 1889, of the method of Halsted of Baltimore, and in 1890 of that of Bassini of Padua, must the radical cure of hernia be considered to date.

These methods, independently evolved by their distinguished authors and fulfilling the same indications, have solved the surgical problem of the ages. In this connection it is interesting to note that in 1890, just prior to the publication of Bassini's method, Dr. Bull of New York City published a paper giving the results in 134 cases of hernia subjected to operation in the preceding four years, with three deaths and 38 per cent. of relapses. In the paper referred to, Dr. Bull says: "In reflecting on the experience of these cases, I am obliged to conclude that in these methods which I have faithfully tried, there is no prospect of obtaining a radical cure in any form of hernia, and the majority of cases will be found to relapse if followed for a sufficient time." Sir William MacCormack states in his Bradshaw lecture for 1893 that of the cases of non-strangulated hernia operated on in the London hospitals, 6 per cent. died. The opinions of such men, with such results as they recorded, served to create in the minds of many conservative men a serious prejudice against the radical operation for hernia, which has only been mitigated within the last few years, owing to the brilliant results obtained under our present system of aseptic technic by the methods of Bassini and Halsted.

The views expressed by Dr. Bull in 1890, which were formulated prior to the publication of the Bassini method, and which were founded on the results of operations since abandoned, are still quoted by some, against the radical operation. It is interesting to note in this connection that within a few years after the publication of this paper, Dr. Bull himself had become one of the ardent advocates of the radical operation for hernia by the Bassini method, and I had the opportunity, in the autumn of 1895, of seeing him perform this operation several times at the Hospital for the Ruptured and Crippled in New York City, where, with Dr. Coley, he was paving the way for the great permanent popularity of this operation in our own country.

Looking back at the infinite series of failures in the efforts to secure a radical cure for hernia already referred to, we, with our present knowledge, are not surprised that success was not attained. Such a fortunate result was impossible prior to the introduction of our modern aseptic surgical technic, no matter how ingenious or how well executed the method of operating might have been. The introduction of the absorbable animal suture has also had a great influence in making the radical operation for hernia a success, although it must be confessed that Halsted invariably uses silver wire for his buried sutures, while Bassini, at least in his earlier operations, used silk for the same purpose

### REQUIREMENTS FOR SUCCESS.

In order that an operation for the radical cure for hernia may be successful, the following indications must be met:

1. A perfect aseptic technic must be followed in all its details.
2. The hernial sac must be obliterated.
3. The internal abdominal ring must be narrowed closely around the cord or a new internal ring made.
4. The inguinal canal must be reconstructed.

The three anatomic indications are fully met in both the methods of Halsted and Bassini.

Without a perfect aseptic technic general sepsis or septic peritonitis may follow the surgeon's efforts, or if such serious dangers to life are avoided, suppuration in the deep portion of the wound will be almost certain to result with a consequent failure in the efforts to effect a cure. This was the rock on which were wrecked the hopes of countless numbers of operators, who essayed to cure hernia with the knife prior to the introduction of our present aseptic methods.

The internal abdominal ring should be narrowed to closely embrace the spermatic cord, for it is a self-evident fact that unless this step is carefully carried out a fresh protrusion of intestine will work its way by the side of the cord down into the canal through the patulous opening thus left.

It is equally evident that the hernial sac must be obliterated, else a trap for intestine will be left, and it is

unnecessary to dwell on the importance of reconstructing the floor of the canal and thus forming a further buttress against hernial protrusion. When a case of hernia is presented to a modern surgeon for operation he may safely limit his choice of method to two operations, namely, the methods of Bassini and Halsted.

### VARIOUS OPERATIVE METHODS.

The Bassini operation is most popular in the United States, and is most highly prized in Europe as well, especially in Italy and Austria. While Halsted's operation is a most excellent method in every respect, yet it must yield the palm to that of Bassini, which, in my opinion, is the most rational, simple, safe and successful yet devised for the radical cure for hernia. Nevertheless, Halsted's operation closely deserves the second place. Kocher's operation, which has yielded excellent results in the hands of its author, is, in my opinion, greatly inferior to the two operations just mentioned. This operation is very objectionable to my mind, from the fact that in this method the attempt is made to treat the sac through the external abdominal ring without the division of the aponeurosis of the external oblique muscle. In very many cases that have come under my eye this procedure would have been utterly impossible of performance. In addition, the passage of sutures to close the internal abdominal ring and narrow the inguinal canal through the intact aponeurosis of the external oblique muscle is a dangerous and unjustifiable procedure, owing to the proximity of such important structures as the internal iliac vessels, the deep epigastric vessels and the spermatic cord. The division of the external oblique aponeurosis, as practiced in the Bassini and Halsted operations, does not add one jot or tittle to the danger of the operation, while it confers on the operator the inestimable advantage of permitting a clear view of all the anatomic details, thus enabling him to strip and dispose of the sac under the direct guidance of the vision and to apply his sutures just where he desires to place them, without danger of wounding important structures. I have in my time had quite a personal experience with operations in the neighborhood of the inguinal canal, both as operator and assistant, yet I am free to confess that I would not dare to perform the Kocher operation as it is described in print.

The operation of Championnière is popular in France, and is seemingly an efficient method, though decidedly inferior to either the Halsted or Bassini operation. Championnière opens the inguinal canal through the external oblique aponeurosis, dissects out, ligates and excises the sac, and then narrows the internal abdominal ring and reconstructs the canal by the use of mattress sutures, which cause "the muscles at the upper border of the canal to overlap the lower border."

Dr. Newbern of New York removes the testicle on the affected side from the scrotum, wraps the cord snugly around it, and anchors all in the abdominal cavity in a pocket, which he constructs with the transversalis fascia of the abdomen near the internal ring. Having thus gotten rid of the testicle and cord without interference with their functions, he entirely closes the internal ring and reinforces the floor of the canal as in the Bassini operation. For cosmetic purposes he places a hollow celluloid sphere in the empty side of the scrotum.

### DESCRIPTION OF THE BASSINI METHOD.

It is useless to mention other so-called operations for the radical cure of hernia; they are all weak imitations of better methods, and serve no useful purpose except to furnish padding for surgical text-books and a little ephemeral advertising for their originators. I never think of operating for hernia by any other than the Bassini method. The steps of this most important operation are, briefly, as follows:

The patient is carefully prepared as for all abdominal operations and all the details of a rigid aseptic technic carried out. In all of my operations my assistants wore freshly sterilized rubber gloves. The incision is commenced at the spine of the pubes, and is carried upward and outward to the extent of about three inches. The external oblique aponeurosis will be recognized by its shining, fibrous appearance. The overlying fascia should be rapidly cleaned off by tearing between the two index fingers. Having located the external abdominal ring with the finger, the operator seizes with forceps the spermatic fascia, extending between the pillars of the ring, and rapidly tears through this tissue with the dull dissector. Through the opening into the inguinal canal so made, he introduces a grooved director, and on it divides the aponeurosis of the external oblique in the direction of its fibers to the extent of about one inch. The two index fingers are then introduced, and the incision of the aponeurosis enlarged by tearing to the requisite extent. This division of the aponeurosis of the external oblique muscle, which forms the anterior wall of the inguinal canal, lays open the canal and exposes its contents.

On strongly retracting the two aponeurotic flaps, the first structure in the anatomy of the canal to attract attention will be the muscular arch formed by the internal oblique and transversalis muscles over the internal abdominal ring. These fibers unite to form the conjoined tendon, which plays such an important part in the reconstruction of the canal, and which can be seen on the inner side of the canal passing down to its insertion into the crest of the pubes and pectineal line.

Poupart's ligament stands out in bold relief when the outer flap of the divided aponeurosis is strongly retracted after the loose overlying fascia has been cleared off with a piece of gauze. Emerging from the internal abdominal ring beneath the arch of the fibers of the internal oblique transversalis muscles before mentioned, will be seen the infundibuliform process of the transversalis fascia, which is continuous at its base, around the circumference of the internal abdominal ring with the transversalis fascia lining the anterior wall of the abdominal cavity, and which, in the case of an oblique hernia, contains the hernial sac and its contents. This fascia should be lightly seized with forceps just beneath the muscular arch, and rapidly torn through with a dull dissector until the sac is reached. Next the sac should be grasped and held up, while with a piece of gauze the tissue still covering it must be stripped off and the sac separated from the spermatic cord, which in an oblique hernia is behind the sac well down into the internal abdominal ring. The use of gauze for stripping the sac will be found most convenient and sufficient.

Having thus thoroughly stripped the sac, it is held in apposition perpendicular to the body, and is opened with scissors between two clamps. Having opened the sac, the index finger is introduced to explore its interior, and on this finger as a guide the sac is opened with scissors pretty well down toward its neck. If the sac is empty, it is pulled up by an assistant with some

degree of traction, its neck transfixed with a needle threaded with kangaroo tendon, and the ligature so introduced, tied first on one side and then around on the other. The portion of the sac beyond the ligature is cut off and the stump allowed to retract into the abdominal cavity. If the sac contains intestine this must be reduced, all adhesions being carefully separated. Should there be found in the sac a large process of omentum, this must be separated if adherent, carefully unfolded, ligated in sections and excised beyond the ligatures, the stump being replaced in the abdominal cavity.

A small omental protrusion may be safely returned into the abdomen without further consideration. Having disposed of the sac, an assistant picks up the cord by means of a blunt hook or a strip of gauze and carries it well up into the angle between Poupart's ligament and the arching fibers of the internal oblique and transversalis muscles. The operator then passes a kangaroo tendon suture through the muscular tissue on the inner side and Poupart's ligament on the outer just above the cord, and ties this suture at once. This constitutes a firm upper boundary for the new internal ring, which will very effectually prevent future stretching in this situation. Then the tissue of the same muscular arch is united to Poupart's ligament just below the cord, while the latter is held up by an assistant as close to the upper suture as possible. This second stitch completes the new internal ring, which should not constrict the cord to any degree, else orchitis or epididymitis, with subsequent atrophy of the testicle, might in all probability occur. Next, interrupted sutures of kangaroo tendon are passed in the same line from just beneath the lower suture of the two forming the new internal ring down as near as possible to the pubes. These sutures pierce the muscular fibers of the internal oblique and transversalis muscle, and when these fibers terminate in the conjoined tendon, this tendon is situated on the inner side and the margin of Poupart's ligament on the outer.

When these sutures are tied the margins of the conjoined tendon and Poupart's ligament are united, thus constituting a new floor for the inguinal canal and affording a further buttress against intestinal protrusion. The cord is then laid on this new floor, and the divided aponeurosis of the external oblique muscle united over it, the last stitch completing the new external abdominal ring. The skin wound is closed in accordance with the taste of the operator and dressed with a dry aseptic dressing. I never use iodoform or any antiseptic in or on my non-infected wounds. The patient is kept in bed for three weeks, and at the end of this period is allowed to get up and gradually get about.

In the case of a direct hernia the intestinal protrusion does not occur at the internal abdominal ring, but forces its way up into the canal from under the external margin of the conjoined tendon, pushing in front of it the peritoneum constituting the sac and the transversalis fascia forming the floor of the canal. Consequently to reach the sac, the transversalis fascia must be divided over the protrusion. The spermatic cord will be found lying in a position external to the neck of the sac.

The deep epigastric vessels are external to the neck of the sac, while the reverse is the case in an indirect or oblique hernia. The sac in direct hernia is disposed of just as in the oblique variety, and then the divided floor of the canal may be united by a continuous suture of kangaroo tendon. The cord is lifted up, the new internal ring constructed around it, and the floor of the canal reinforced by uniting the conjoined tendon to Poupart's ligament, just as in the operation for the radical cure of oblique hernia. I desire here to call attention to an anatomic fact which I have noted in every operation for direct hernia which has fallen under my observation, and that fact is this: That the conjoined tendon does not form a covering for direct hernia, either when the sac is confined to the inguinal canal, or has escaped through the external abdominal ring into the scrotum, as is erroneously stated in Gray's Anatomy and in other text-books. The hernia in every case of direct rupture pushes its way into the canal from under the margin of the conjoined tendon, and when once in the canal, passes on down toward the scrotum, lying to the outer side of the conjoined tendon. I have demonstrated this fact to the surgeons present at quite a number of operations for this variety of hernia, and within the last week have had the opportunity of making a similar demonstration to my assistants at the First Reserve Hospital.

In a case of oblique hernia of the congenital variety, the protrusion of intestine takes place directly into the patulous tunica vaginalis, which has remained open at its upper extremity, thus communicating with the general peritoneal cavity. In such cases it is necessary to divide the sac horizontally into two portions, the lower portion being stitched closely around the cord to form the tunica vaginalis testis, while the upper portion is separated from the cord and treated by ligation and excision in the usual manner.

Halsted's operation is so well known that I do not consider it advisable to take time to describe it.

### STATISTICS.

For fear that I may be considered too enthusiastic on the subject of the radical cure of hernia, I beg leave to briefly present a few statistics with reference to the results of modern operations:

In September, 1895, by order of the War Department, on the recommendation of the surgeon general, the radical operation for hernia was made the routine treatment in the United States Army.

At that time the whole question was still *sub judice*, and the responsibility of proving the adaptability of the operation to the military service was placed on the pioneer operators of the medical corps of the Army, in which class I happened to be. Since that time, several hundred operations for the radical cure of hernia have been performed by the officers of the Medical Department on the officers and soldiers of the United States Army, with the most brilliant results, which have, beyond all cavil, proved the operation to be most admirably suited to the military service. There has been no mortality as far as I have been able to learn in the practice of the surgeons of the Army, with the exception of one death which occurred at the General Hospital in Washington, and the rate of relapses, even after the severe hardship and effort consequent on the arduous campaigning which has fallen to the lot of the United States Army since 1898, has remained so small as not to merit consideration.

I have lost count of the number of operations which I have performed, but I think I may fairly place my own cases in the neighborhood of 100. In this list there has been no mortality and no wound infection, except in one case, in which a small abscess developed under the skin after the skin wound had healed *per primam*. So far as I have been able to trace my cases I have had only three slight relapses, which were no more than

slight bulgings at the internal ring. One of these so-called relapses occurred in the case of a cadet at the United States Military Academy, who, after being returned to duty, was sent to the hard work of the riding school too soon after operation.

I operated on this patient a second time, and at the operation discovered that the union of Poupart's ligament to the conjoined tendon was perfect, and that the cause of the trouble at the internal ring had been the yielding and stretching of the latter. This was reduced by two kangaroo tendon sutures, and he has had no further trouble from his hernia. He completed his cadet life, graduated, and is now on duty in the Philippines. He called to see me the other day, and reported himself as being perfectly cured. Consequently, I have to my credit, or rather discredit, two partial relapses still remaining out of about 100 operations.

Dr. William B. Coley of New York reports[1] the final results of 1,003 operations for the radical cure of inguinal and femoral hernia performed between 1891 and 1902. Of these cases 937 were operations for inguinal and 66 for femoral hernia. Of the 937 inguinal cases, 756 were in the male and 181 in the female.

From the above list are excluded all cases operated on within six months of the time of the writing of the paper. In this list of 1,003 cases there have been two deaths, or adding the operations performed up to May 11, 1903, two deaths in 1,075 cases, which would constitute a mortality of one-fifth of 1 per cent. Dr. Coley's first death was due, he states, to ether pneumonia, in a child 6 years of age, and the second fatality occurred in a case of an adult with a large irreducible omental hernia.

At the Vienna Clinic, according to Dr. Coley's statistics, there were three deaths in 804 operations.

At Johns Hopkins the mortality rate has been only one death in 459 cases, and at Carle's Clinic in Rome there were only two cases of mortality in 400 operations, one being from pneumonia. It can be seen from these statistics that at the present day the danger of a fatal result at the hands of a careful and skillful operator is so infinitesimal as not to be worthy of consideration.

### RELAPSE STATISTICS.

In the 937 cases of operation for the radical cure reported by Dr. Coley, 917 were typical Bassini operations with transplantation of the cord, in which list there were 11 relapses, a rate of 1.2 per cent. In 20 cases in which the cord was not transplanted and which consequently were not regular Bassini operations, 6 relapses have been observed by Dr. Coley. This, to my mind, is a very strong argument against leaving the cord *in situ*.

The Johns Hopkins' statistics show that in 307 operations for inguinal hernia by Halsted's method, there resulted 7 relapses and 4 cases of weak cicatrices. Counting the latter as relapses, there would be 11 relapses in this list, making a rate of 3.6 per cent.

In a series of 2,032 Bassini operations published by Matanowitsch, as having occurred in the practice of various surgeons, there were 74 relapses, which is a rate of 3.6 per cent. In 528 cases by Kocher's method, reported by this observer, there were 19 relapses, 3.8 per cent.

### WOUND HEALING.

In the 1,003 operations for inguinal and femoral hernia, Dr. Coley reports 30 cases of suppuration, in only 9 of which cases was the suppuration deep, the remaining being limited to stitch-hole abscesses. Prior to March, 1899, when Dr. Coley and his assistants began to use rubber gloves, the cases of suppuration amounted to 4.2 per cent. Since the use of rubber gloves at this operation, Dr. Coley states that he has had only 5 cases of suppuration (1 deep and 4 superficial) in four years in about 400 cases, or 1¼ per cent.

At Halsted's Clinic, before rubber gloves were worn, the suppurations amounted to 24.13 per cent. In 226 cases in which gloves were used, there were only 4 suppurations, 1.7 per cent. I do not think that further proof of the great value of rubber gloves in surgical work could be demanded, even by the most skeptical.

The above statistics are conclusive, and I feel perfectly justified in claiming that a careful modern operator can easily hold his rate of suppuration close to 1½ per cent. In my own list it has been 1 per cent.

### CONCLUSIONS.

In view of the facts adduced in the preceding pages, I feel justified in formulating the following conclusions:

1. By the methods of Bassini and Halsted, the modern surgeon has at his command two absolutely reliable operations for the radical cure of hernia.
2. With our modern strict aseptic technic, the operation is as safe as any in surgery, and the risk of a fatal termination in an operable case is so insignificant as not to be worthy of consideration.
3. The danger of relapse is so remote as to be of no moment in forming a decision with reference to the advisability of an operation in any given case
4. If the above propositions are true, every operable case of hernia in patients between the age of 4 and 50 years and without disease of vital organs, should be subject to the radical operation, as is the custom of our military service.

1. Annals of Surgery, June, 1903.

## ACIDOSIS.

### EXPERIMENTAL EVIDENCE THAT ITS NERVOUS SYMPTOMS ARE NOT WHOLLY DUE TO LACK OF ALKALI.

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STANFORD UNIVERSITY, CAL.

Experiments performed in Professor von Noorden's Laboratory in the Städtisches Krankenhaus, Frankfurt a. M.

The following experiments were performed in the hope of throwing some light on acidosis and coma in diabetes. Coma is usually ascribed to the effect on the nervous system of the circulation of blood of diminished alkalescence in the blood vessels, and it is usually assumed that this blood change is due to the chemical union of certain acids, particularly betaoxybutyric, with the alkali of the blood. It is for this reason that sodium bicarbonate is administered by mouth in moderate acidosis, and sodium carbonate given intravenously for coma. These measures are not uniformly successful, and frequently much less so than theoretical considerations would lead one to expect. There are some facts pointing toward a specific toxic action of betaoxybutyric acid.

Intravenous infusions into forty rabbits were made with dilute solutions of sulphuric, acetic, lactic and betaoxybutyric acids, and with neutralized betaoxybutyric and lactic acids. These infusions were made in a normal saline solution at a body temperature, at a fairly uniform rate of 4 c.c. per minute. The femoral or one

of the ear veins was used. The acids produced the characteristic symptoms of acid poisoning, dyspnea, fall of body temperature, convulsions and death; and the toxic doses for each acid were fairly uniform per gram of body weight. The infusion of betaoxybutyric acid produced in no experiment a typical coma, although most of the rabbits passed through a stage, just previous to the convulsions, when they were very quiet and less susceptible to external stimulation.

The sulphuric acid (in N/10 sol.) was most toxic, about five times as toxic as betaoxybutyric acid; then the acetic (2½ per cent. sol. used), lactic (5 per cent. sol.), and betaoxybutyric (5 per cent. sol.). The average toxic dose of the latter was 0.03152 c.c. of a 5 per cent. solution per gram of body weight, while that of lactic acid was 0.0172 c.c. per gram of body weight.

Experiments of two kinds were performed to test the effect of the infusions of neutralized solutions of betaoxybutyric and lactic acids. The latter organic acid was used as a control to find out whether there was a specific toxicity of the betaoxybutyric acid salts. First, infusions were made, until a fatal result was obtained, with a 5 per cent. solution of betaoxybutyric acid neutralized with $Na_2Co_3$ or KOH, and, second, infusions were made with neutralized 5 per cent. betaoxybutyric acid until various proportions of the toxic dose were given, and then the 5 per cent. betaoxybutyric was administered until death occurred.

Two typical experiments follow.

EXPERIMENT 1.—Male rabbit, weight 1,800 grams. Infused 209 c.c. of a 5 per cent. solution of neutralized betaoxybutyric acid at the rate of 4 c.c. per minute. Bladder empty at beginning of experiment. No noticeable change in the condition of the animal until 67 c.c. were given, then the respirations began to increase. At 100 c.c. the breathing was of a snoring character, sighing at times and the animal was very quiet and kept the eyes closed. It moved only when disturbed.[1] (This condition was seen at times with the betaoxybutyric acid infusions, but was more noticeable in the neutral infusions.)

At 180 c.c. the respirations became rapid and irregular and various muscular movements began, especially twitching of the eyeballs. The pupils were somewhat enlarged. There was a gradual increase in the violence of these symptoms until 204 c.c. had been infused, when the first general convulsion took place. Recovery from this followed a cessation of the infusion, but when 5 c.c. more were given, a few minutes later, the terminal convulsion took place.

The urinary secretion began soon after the infusion, and continued even during the convulsive stage. In all, 220 c.c. of faintly alkaline urine (more than the fluid injected) were collected.

*Postmortem.*—No abnormal changes except a slightly yellowish color of the kidney cortex, a distended gall bladder, and markedly fluid contents in the small bowel.

This experiment shows that the neutralized solution was toxic in a dose of .116 c.c. of a 5 per cent. solution to gram of body weight, and is typical of similar results obtained in other rabbits. In general, the symptoms produced were similar to those obtained from the betaoxybutyric acid infusions, except that more of the neutralized acid was required. Similar experiments with the sodium salt of lactic acid were fatal in the dose of .118 c.c. of a 5 per cent. solution to gram of body weight, and the symptoms, except for the coma-like state, were practically identical.

1. It would be instructive to study the influence of neutralized betaoxybutyric acid on the nervous system of the monkey, in which the mechanisms of expression are so much more fully developed than in rabbits. Dr. C. A. Herter tells me that he has produced typical diabetic coma in monkeys by the intravenous infusion of solutions of betaoxybutyric acid. (See Transactions N. Y. Path. Soc., 1899.)

The second experiment given is to illustrate the effect of infusing a certain proportion of the toxic dose, as found, for neutralized betaoxybutyric acid, and following it with a proportionate dose of betaoxybutyric acid solution. This was to see whether the effect produced by the neutralized acid reduces the amount of acid required to produce death and vice versa.

EXPERIMENT 2.—Male rabbit, 1,330 grams body weight. (From average of former experiments we would expect about 150 c.c. of neutralized and about 41 c.c. of the 5 per cent. betaoxybutyric acid to be the respective toxic doses in a rabbit of this size.) Eighty-three cubic centimeters (about 55 per cent. of toxic dose) of the 5 per cent. betaoxybutyric salt was infused. The characteristic free diuresis began promptly, and the respirations began to increase at 75 c.c. Then after a short delay 24 c.c. (a little more than half of toxic dose) of 5 per cent. betaoxybutyric acid was given and the usual results, rapid breathing, convulsions and death, were obtained. During the infusion of the salt 90 c.c. of urine was passed, and 30 c.c. during the infusion of the acid.

Similar results were obtained from the infusion of varying proportions of acid and salt, giving sometimes the acid before the neutralized solution. The fatal result was particularly striking and prompt, when, after the infusion of enough neutralized solution to cause rapid breathing, a small amount (5 or 10 c.c.) of betaoxybutyric acid (5 per cent.) was rapidly given. This rapid addition of free acid seemed to exert more effect than was to be expected from its toxic acid value.

The above experiments show that in rabbits neutralized betaoxybutyric acid is toxic and that it produces symptoms similar to those of the acid itself. It seems probable that in some of the cases of diabetic coma the effects produced by betaoxybutyric acid production in the body are not due entirely to its withdrawal of alkali from the blood, but that its salts, arising from combination with the blood alkali, are still toxic, though in a lesser degree. The failure or only partial success of sodium carbonate infusions and of the alkali treatment in general is probably due to the poisonous action of neutralized organic acids which are not removed from the organism.

It thus appears that the pathologic effects of acidosis can not be wholly due to the withdrawal of alkali from the blood and various tissues, and this is the outcome of my experiments which I desire especially to emphasize.

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**Oxygen in Surgical Infections.**—Dr. Thiriar recently communicated to the Belgian Académie de Médecine his further successful experience with the direct application of a stream of oxygen to infected tissues. He uses it in the form of a permanent application; a tube is inserted in the lesion, communicating with the oxygen tank, and left undisturbed for several days. Every case of infection of a serous membrane has been benefited by this treatment in his experience, but the results have been most striking in gaseous septicemia. The oxygen not only stimulates the tissues and promotes phagocytosis, but also kills the germs, substituting an oxygenated emphysema for the microbian emphysema. Oxygen applied under pressure to a furuncle or carbuncle has always aborted or cured it in a few days, and it has proved its usefulness in hundreds of cases of diffuse phlegmons, gangrenous erysipelas, suppurating complicated fractures and arthritis. He does not advocate it for generalized infections, although recent publications have proclaimed the feasibility of intravenous injections of oxygen, with which Thiriar has had no experience. The *Gaz. Méd. Belge* of August 6 gives the particulars of several cases of suppurating knee affections treated by Thiriar's method as an adjuvant to operation, commenting on the rapid and perfect healing under the stream of oxygen.

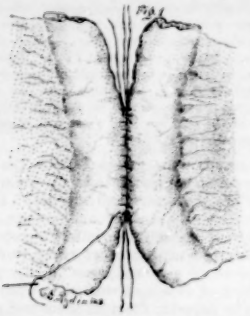
## A NEW METHOD OF LATERAL ANASTOMOSIS.

PRELIMINARY REPORT.

AXEL WERELIUS, M.D.
CHICAGO.

The object of this paper is only to record the technic of the operation. The result of experimental work now in progress will be published later.

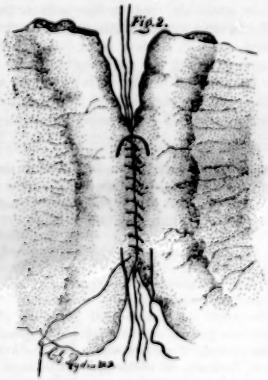
STEP 1.—Fix by guy suture opposing surfaces of intestines, or stomach and intestine, as the case may be,




and sew (Fig. 1) with running through-and-through suture.

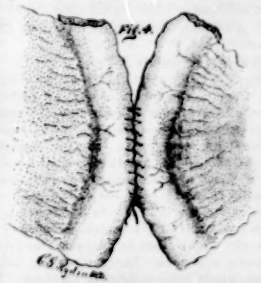
STEP 2.—Insert a silk or twine ligature or silver wire (Fig. 2), running into lumen of bowels, as in the McGraw ligature.

STEP 3.—Cover the silk ligature by folding adjacent parts of intestines over it and sew with through-and-through suture, leaving the free ends of the silk ligature on the outside (Fig. 3).




STEP 4.—An assistant holds the united tissues firmly on the opposite side of the free ends of the ligature. By alternate pulling of the right and left ends of the silk ligature, the tissues are neatly cut through and an anastomatic opening is made, the thread escaping through the minute slit between the sutures. Take one more stitch where the thread slipped through and the operation is complete.

By this last maneuver, which is the distinguishing feature of the operation, the bowel is cut through without exposure of the mucous surfaces. The operation is




complete at once, leaving no foreign body. There is no puckering.

It is extremely simple, and takes less time than any similar operation.

## Clinical Report.

### A PECULIAR CASE OF POISONING.

MATT A. REASONER, B.S., M.D.
MORRISONVILLE, ILL.

*History.*—Boy, aged 7, had in some manner acquired a taste for asafetida, and without the family's knowledge had been in the habit of eating it for six months. A large quantity of the drug was procured in order to prepare some hog medicine, and the boy found it and ate all he wanted.

*Examination.*—When discovered he was in a semi-stuporous condition, lying down, body relaxed and warm, pupils dilated, unable to stand erect without falling. Pulse weak, feeble, accelerated; respirations shallow, irregular and about 22 a minute; expectoration rather profuse. Within a couple of hours the odor of asafetida was plainly discernible in the different secretions, and for several days after in the diarrheal bowel movements.

*Treatment.*—I did not see the patient until probably one hour and a half after eating the asafetida. I used emetics, evacuants and stimulants. He was much better in two hours, but some of the effects remained for twenty-four hours.

## New Instruments.

### ACETYLENE HEADLIGHT AND REFLECTOR FOR NIGHT OPERATING.

EVAN O'NEILL KANE, M.D.
KANE, PA.

This acetylene light is designed principally for night emergency and other outside surgical work, and especially for illumination of the abdominal cavity. It burns with extraordinary brilliancy. It is almost equal to the sun's direct rays for at least three feet from the reflector. No heat is thrown back against the face or forehead. Fitted firmly on the brow, it enables one to throw the light in any direction, even vertically. Both reflector and light turn on a ball-and-socket adjustment.

Fig. 1.—The headlight, showing head band and tube.

Fig. 2.—Method of using headlight.

The burner is fed through a rubber tube which passes over the head and down the back and is out of the way while operating. From the back the tube passes around to the side to enter the generator worn there. This generator is retained in position by a shoulder and waist strap. The whole affair is simple, easily operated, rapidly adjusted and can not, like an electric apparatus, fail one at the critical moment by getting out of order. All that is necessary is to be sure that the receptacles in the generator for carbid and for water are filled; simply touch a match to the burner and magnificent illumination is sure to result.

I have been experimenting with acetylene gas for this purpose for some time, and I am confident that my device is far superior to anything else now before the profession. The only drawback to this apparatus worthy of mention is its price, the expense of operating it being a mere trifle of a few cents; but when placed regularly on the market I am assured it can be obtained very reasonably. I have a few modifications and improvements still to make in this lamp, but even as it is I can promise any operator that he will consider it indispensable after once employing it.

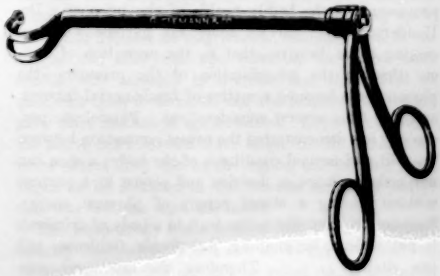
### A NEW TONSILLOTOME.

E. E. STRAW, M.D.
MARSHFIELD, OREGON.

The instrument here represented is a double-curved scissors, the blades of which are connected to the handles by means of a tube and shaft. The handles are held by a detachable and reversible lock, and the blades joined at the distal ends by a pin-lock. A slot one-eighth of an inch wide, running the entire length of the tube, allows the passage of the shaft in taking the instrument apart and putting it together. A separation or closure of the handles rotates the shaft inside of the tube and causes a corresponding motion of the blades.

This tonsillotome possesses the following advantages:

1. It engages the whole tonsil, and the curvature of the blades is such that any desired amount of tissue can be removed at the first cut without danger of injuring the faucial pillars.



2. The tendency of the blades is to pass behind and not through the tonsil, and by severing the blood vessels in the soft underlying tissue the danger from serious hemorrhage is diminished.

3. Little, if any, preliminary dissection is required.

4. The operator's hand is placed in a comfortable position and does not interfere with his view.

5. The blades can be thrown wide apart without any motion of the instrument in the patient's mouth.

6. It has reversible handles and therefore can be used for either tonsil.

7. Its construction is simple and it has no delicate parts that are liable to get out of order.

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**Absorption of Silk Sutures.**—Silk sutures, when buried in the tissues, are considered non-absorbable, but Dr. E. Muirhead Little, in a letter to the London *Lancet*, reports a case in which silk sutures, which had been placed in a tendon, were absorbed after fourteen months.

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## MODERN PRISON SYSTEMS.

The United States Government has recently issued a "Report on Modern Prison Systems," written by Dr. Charles R. Henderson, which brings together some very interesting material especially concerning the present status of European continental prisons.

Probably few of the social contrivances of men have changed more than the prison and the penitentiary. It is not many centuries since our English forebears felt no responsibility for a prisoner beyond his literal safe-keeping. Bolts and bars were provided by government, but food, for instance, was to be obtained by the prisoner as best he could. Although it has been shown that in certain modern prisons conditions have been so prejudicial to health in very recent years that a ten-year sentence was "equivalent to capital punishment," yet in the main it is perhaps true, as Dr. Henderson points out, that a conscientious effort is now made in a number of our prisons for the conservation and improvement of the bodily health of the prisoner. Dr. Henderson says: "If we adopt the purpose which is coming to be decisive—that is, the protection of society through the rehabilitation of the prisoners—the physical care becomes a matter of fundamental interest, and this from several considerations. Physiologic psychology has demonstrated the causal connection between the will and normal conditions of the body; a man can not make a choice or decision and persist in a purpose without having a stored supply of physical energy. Perhaps the most distinctive trait in a body of criminals is not violence or cunning, but simply feebleness and low vitality. . . . Therefore, the intelligent warden or superintendent aims first of all to brace a man for the struggle of life by improving his physical health."

In view of this interesting and sanguine introduction, some of the details furnished from the official regulations of the penitentiaries in various countries are somewhat disappointing. The report considers the prisons of the chief European nations, with the exception of Russia, and along with general descriptions of prison organization gives much information as to dietaries and sanitary regulations. The dietaries in some of the foreign countries seem inadequate to American readers, though they may be proportioned to the general standard of living in the same countries. It is, however, startling to an American to learn that, out of the twenty-one meals weekly in the prisons of Würtemburg, nine consist of a little more than half a pint of "soup" made of hot water and black bread. At two meals in each week and on extra holidays the prisoner is allowed a little less than a quarter of a pound of meat. The other meals consist principally of vegetable soups and various flour foods. The Holland dietary, though slightly more generous, is still very restricted in quantity and variety. It has been the reproach of English prisons up to very recent years that a prisoner was doomed always to be hungry. On the whole, it is probably true that the American prisoner is the most liberally fed of all. However, among the thousands of county jails and city prisons each is a law unto itself. Some are lavish, some niggardly. Dr. Henderson very properly suggests as one of the most desirable reforms in administration of jails in the United States the establishment of a standard legal dietary with power lodged in a state board of supervision to see that it is enforced. As yet there is no approach to a common understanding on the subject. "The admirable studies of food published by the Department of Agriculture will ultimately assist in the preparation of a standard dietary suited to American conditions."

The criminal class naturally shows a strong tendency toward various neuroses and especially toward insanity. In some countries in the selection of prison physicians the preference is given to those who have had experience in hospitals for the insane. In Holland and Belgium provision is made for periodical inspection of prisons by expert alienists. Prisoners who become violently insane are removed to the state asylums, but the system of special asylums for criminal insane is apparently further advanced in America than in the continental countries. Sometimes special expert commissions are sent from the institutions for the insane to inspect the prisons at regular intervals or for special cases if necessary. The German states and Belgium have notably good regulations on these points. It is true that the details of punishment and discipline, the limited exercise and food, the scant provisions allowed for cleanliness, as set down in the various official regulations, indicate a rather inadequate fulfillment of the larger conception of the physical aim of the prison with which the author sets out. Yet there are points of great encouragement. For instance, it is indisputable that the Elmira Reformatory has furnished to the world the best and earliest practical example of a prison conducted on the basis Dr. Henderson describes. It has undergone many vicissitudes of management, but the principles on which it is conducted not only have for their basis the conviction that a healthy body is an essential condition of mental and moral sanity, but the practical carrying out of these principles has demonstrated their truth.

To the Italians we are, of course, indebted for those brilliant studies in criminal psychology which have given

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a world-wide impetus to the understanding of the physical basis of moral disorder, and have brought the criminal class within the recognized field of medical science.

There is one point of great significance in this report, namely, the fact that in the European prisons the appointment of all officials and the entire control of the prisons is shown to be free from political influence. As we have had occasion to point out in discussing the public care of the insane, political control and scientific progress are eternal enemies. As soon as this incubus is removed the higher standard of living in this country, the simpler democratic attitude toward individuals, and, above all, the growing interest of the schools and universities in social science, give cause to believe that the American prison may become truly humanizing.

## THE CURABILITY OF PULMONARY TUBERCULOSIS.

It is not without reason that pulmonary tuberculosis has been dubbed "the white scourge," "the captain of the men of death," and similar terms denoting its destructive effect on human life. It is probable that the knowledge of its great mortality has led both the laity and the profession to too pessimistic a view of the curability of this disease. When we consider some of the recent statistics, such as those of Naegeli and others, which show that practically everyone has some form of tuberculosis before death, one is led to the conclusion that tuberculosis is the most curable of the more chronic diseases.

In a recent article Blumer and Lartigau[1] give the results of an analysis of 500 consecutive autopsies with regard to the prevalence of healing or quiescence in pulmonary tuberculosis. They regard as evidence of healing the patches of cicatricial tissue found in the region of the apices, and also the calcareous nodules so frequently present in the lungs. Neither of these lesions can be definitely proved to be residua of tuberculosis, because inoculation experiments with them are negative, but in the case of the calcareous nodules there is little doubt, as all stages, from caseous to calcareous areas, can be traced, and in the case of the apical scars their situation, their frequent association with active lesions, and the fact that they may be the only findings in individuals who are known to have had tuberculosis during life makes their previous tuberculous nature practically certain. The writers point out that any area which contains caseous material can not be regarded as healed, inasmuch as inoculation experiments with caseous material are practically always positive; they, therefore, regard such areas, whether encapsulated or not, as merely quiescent.

Inasmuch as in previous articles the healed and quiescent cases are considered together, Blumer and Lartigau follow the same course with their cases. They show that the percentage of healed pulmonary tuberculosis reported varies from 4 per cent. to 100 per cent., their own cases showing 28.8 per cent. The great differences in the reported statistics are due, they think, to a variety of causes. In some instances routine autopsy records are used made by many observers, many of whom were doubtless not at all interested in healed tuberculosis and were not looking for it particularly. In other articles all cases of active tuberculosis were excluded in making up the statistics, this tending to make the percentage of healed cases higher. Another source of error lies in the fact that some statistics cover cases from hospitals with patients suffering from acute illnesses, others cases from hospitals for chronic disease, others almshouse cases, and still other deaths from violence or suicide. The most important factor regulating the per cent. of cures, and one which is not mentioned in many of the reports, is the age of the patient. The authors show that where a very high percentage of cure is reported the patients are practically always old people. The cases analyzed by Blumer and Lartigau were some of them hospital and some of them private cases, and were all particularly scrutinized for signs of healed lesions in the lungs. The figures obtained by these observers show that the signs of healing, as would be expected, corresponded to the areas in the lung most often the sites of active tuberculosis. Almost the same percentage of healing occurred in females as in males, the former showing 29.4 per cent. of healing to 28.4 per cent. on the part of the males. The analysis of the cases as regards age brought out the most interesting figures. In both males and females there was very little tendency to healing up to the age of 15, and no very marked tendency even to the age of 25; after this age, however, the active cases tended very strongly to decrease and the healed or quiescent cases to increase, and the tendency to healing grew more marked as age advanced. Curiously enough, the active cases reached their height in the females ten years before they did in the males, and healing cases began to be common in the females ten years before this was the case with the males.

The whole study tends to show the curability of pulmonary tuberculosis, but it also shows that the tendency to spontaneous cure can not be relied on to any great extent in childhood and early youth, and impresses on us forcibly that at these periods of life especially the diagnosis of the disease must be made early if successful treatment is to be hoped for.

1. California State Journal of Medicine, September, 1904.

## GRAFT IN PUBLIC INSTITUTIONS.

Occasionally it happens that a physician of excellent professional standing is appointed to a public position, such as the superintendency of a state institution, and that thereafter the newspapers begin to teem with stories of mismanagement, of revolts, and of general turmoil in the institution. And then it is insinuated that doctors are not business men. The man on the inside knows better. The sweeping statement can be made that the majority of our public eleemosynary

institutions are the subject of more or less "graft." This "grafting," except on the pettiest scale, is difficult when a shrewd man is at the helm. Therefore, the "grafters" must have a superintendent who, at least, is complaisant.

In two different instances, each in a separate state, medical men possessing administrative ability to a marked degree have had trouble all through their administrations. At the beginning the old "grafters" had been found and decapitated. These joined forces with others who wished to have a part of the spoils, and a regular plan was formed to foment turmoil in the institutions. Subordinate employes have been incited to drink and to disorder, assistant physicians have been told false and damaging stories regarding their chiefs, the legislature has been influenced to curtail necessary appropriations, and everything possible done to keep the superintendent in hot water, in order to make a showing that he is a poor administrator. This process is extremely harassing, and few can stand it. So it comes that the higher class of medical men rarely seek these positions where they could do so great service to medicine and to the commonwealth.

Indeed, nowadays one may almost conclude that administrative peace in an institution, whose management is in the hands of those appointed by partisan politicians, means that the "grafters" are allowed free hand, either for a share of the plunder or because of a convenient lack of vision that is assumed as the price of peace and of continued tenure of office. The superintendent is safe, and is a "good fellow" if he neglects to see that his wards are getting renovated butter when the state is paying the market price of good butter; that the coal bill is increased by the inclusion of quantities of slate; that the beef bill is swelled by the steward sharing in "short weighing" of cattle, and that the foundation of a heavy new building is being made out of loose, unshaped stone held together only by poor mortar.

As a rule, it is a sign that a superintendent of good repute is manfully doing his duty if discharged employes and small political fry bring against him all manner of charges, and keep it up persistently month after month. At least, one such battle is now in progress, but the superintendent, fortunately, has at his back the organized profession of his state. He should win.

And here a suggestion is permissible. In every such case the medical profession has a chief interest not yet acknowledged by the politicians. If there is doubt as to the true state of affairs, the state association or the county society should appoint a committee of members of tried integrity to investigate the institution's affairs minutely and report publicly; we repeat, report publicly. In this way the medical profession can do what it ought to do—discountenance institutional "grafting." In this way, too, it can demonstrate to the public and to the politicians that it has a real interest in institutions for the care of the sick, the infirm and the insane.

## THE PROBLEM OF A SATISFACTORY MILK SUPPLY.

It is not always easy to determine the most effective method of improving the quality of town and city milk supplies. The matter, however, is, as the French express it, on the order of the day. It is well known that various more or less tentative efforts looking toward reform have been made by many communities. Some of these experiments have been crowned with a high degree of success, but it is an open secret that the campaign for pure milk has not been equally effective in all places.

Under the circumstances, the experience of one remarkably successful method is of value to other municipalities similarly situated. The persistent endeavor made by the town of Montclair, N. J. (population in 1904 about 17,000), for a pure milk supply has been based on the doctrine of thorough investigation followed by publicity, and the result of this mode of procedure is worthy of deliberate examination. The tenth annual report of the Board of Health of Montclair (1904) now before us, affords an interesting illustration of the actual practice. Detailed and candid statements are made concerning the condition of the twenty-one chief sources of milk supply; together with these are given the complete reports of chemical and bacterial analyses based on the examination of monthly samples. In each case the name of the proprietor of the milk route is printed in full, as well as the names of the farmers from whom the supply is obtained. The comments on the cleanliness of surroundings and on various important details of conducting the business are decidedly frank, and there seems to be no reason why any citizen of Montclair should not keep thoroughly informed regarding the character of the milk furnished his household.

Two examples of the outspoken method followed in the printed report are, perhaps, worth quoting: "Albert and Pflug.—As predicted last year, this supply has proved unsatisfactory to Montclair, and gave up the ghost after a little struggle." "The Puritan Dairy.—W. H. and R. S. Francisco, owners of this dairy, have kept it in better condition than usual this year, but it is necessary that they make further effort to keep down the bacteria and the dirt." Other milkmen and proprietors are, respectively, admonished to remove manure heaps from the neighborhood of the dairy, to discontinue the use of straw and hay as litter, and to use more whitewash. The open and public character of these statements and warnings must, in a large measure, be responsible for the high degree of success attained by the Montclair method. That the success is a real one is evinced by the analyses included in this interesting report. In view of the general legal requirement in our cities of a butter-fat content of 3 per cent., it is noteworthy that only eight of the twenty-one Montclair supplies failed to maintain an average of upward of 4.5 per cent., and that the lowest average of all is 4.27 per cent.! The number of bacteria found in nearly

all the samples of milk is remarkably low. The highly satisfactory condition prevailing in Montclair is no accident, but is the outcome of an organized and systematic campaign.

The following extract from the report just cited is suggestive reading for citizens of other communities in which at the present time conditions are less favorable: "After ten years of unremitting effort to secure a pure milk supply for Montclair, it is felt that in a large measure success has been attained. Most of the dairymen are thoroughly aware that it is impossible to market an unclean or impure milk in town for the simple reason that the public will not buy it. The successful dairymen have brought their plants to a high degree of perfection, and the others are compelled to follow their example by the mere force of competition. Nearly all the men keep their cows in stables, which are ceiled and which are cleaned twice daily. The use of straw and meadow hay for bedding has been given up by all of the best dairymen and by most of the others. The feed is carefully selected, and the cows are kept clean and in good condition."

## BLOOD PRESSURE IN THE INSANE.

That certain conditions are attended more or less constantly with a blood-pressure that varies only within narrow limits might be inferred from *a priori* reasoning, but knowledge on this subject is as yet too scanty to permit of the formulation of definite conclusions. As a matter of fact, it is only within comparatively recent times that methods have been devised by means of which it is possible to measure the blood-pressure with the facility necessary to make such a method of clinical utility. An important step forward would, indeed, be made if the conditions under which blood-pressure is raised or lowered respectively were established, as it is probable that information of this character would constitute a most valuable therapeutic guide. While it seems likely that the blood-pressure is subject to considerable variations even under apparently like conditions, it may be found, nevertheless, that it pursues a certain curve that may prove more or less distinctive. Observations have already been made indicating that the blood-pressure is increased in connection with depressive mental states, such as melancholia, and decreased in the presence of mental disorders attended with excitement, such as acute mania. It has further been found that the blood-pressure varies in the course of the same affection; for example, circular insanity, accordingly as a state of excitement or one of depression prevails.

With the view of determining the value of blood-pressure observations in their bearing on the diagnosis and treatment of mental diseases, Dr. W. R. Dunton[1] undertook a study of the subject at the Sheppard and Enoch Pratt Hospital, the results of which, while not conclusive, are at least interesting and suggestive. At first a series of single observations were made on a number of patients, but it was soon realized that accurate results could not be obtained by such a method, so that later the blood-pressure was regularly measured in several cases throughout the course of the mental disorder. The readings were taken in the ordinary way, just as observations of temperature, pulse and respiration are made, no attempt being made to isolate the patient from sights and sounds that might affect the reading, and the patient not being asked to lie down, if up and about.

It was found that the continuous taking of the blood-pressure is of little value in the majority of mental cases, and the plan was adopted of taking it for a limited period, then discontinuing the observation, and resuming it at another period, whenever a change in the motor or mental condition of the patient occurred. While no point could be observed where there was any change sufficiently marked to be noticed as corresponding with any mental change, and no constant ratio, direct or indirect, could be made out between the motor, mental and blood-pressure curves, nevertheless the average blood-pressure was found to be low in connection with motor restlessness or mental excitement and high in connection with depressive conditions or diminished mental activity. The influence of the motor condition on the blood-pressure was greater than that of the mental condition. A moist state of the skin was without especial influence on the blood-pressure, although it is thought active perspiration may have such an effect. The observations of others that the blood-pressure is lower in the evening than in the morning could not be confirmed.

1. American Journal of Insanity, vol. lxi, 1, p. 41.

## THE DANGER FROM ARSENIC IN CLOTHING.

The Department of Agriculture has been investigating the amount of arsenic used in coloring wall papers and in preserving articles of clothing. Samples of wall paper were purchased in the open market in Washington and examined. Only four samples contained more than 0.1 grain to the square yard. This is the maximum quantity allowed by the law of Massachusetts, which is the only state in the Union having a law regulating the use of arsenic in wall paper and wearing apparel. Several samples of stockings were examined, and a number were found to be heavily charged with the poison. Black stockings seemed to contain a larger amount of the drug than colored stockings. Furs and fur rugs were found to contain from 20 to 1,700 times as much arsenic as would be allowed by the law of Massachusetts. Poisoning caused by wearing garments containing arsenic is a very real danger and menace to health, which is probably often overlooked. Many cases of arsenical poisoning of obscure origin, no doubt, might be traced to a small abrasion of the skin of the feet or neck being brought into contact with hosiery or furs containing arsenic. This is another factor in the etiology of disease, for which the practitioner must watch until the government shall control the matter.

### LARGE FEE SECURED BY MORAL VIOLENCE.

A distinguished Paris surgeon, whose methods have come sometimes under the criticism of his confrères, is in trouble. It is reported that he demanded a fee of $20,000 to cure a patient with an anticancer serum, after having begun the treatment and declared the case a curable one, and that he threatened to discontinue his services if it was not at once paid. The patient became worse and finally died, and her husband is now suing the physician for the sum paid, pleading "fraud and moral violence." The plaintiff in the case is an American, as in another recent case noted by us as occurring in Germany. The proper moral to be drawn from the facts is, do not go to those who claim too much, and be especially shy of those who have not the full confidence of their own professional confrères or who have come under their criticism generally for methods or acts deemed unethical. The moral that will probably be drawn by many Americans is not to go abroad for treatment, and such occurrences will be likely to diminish the profits of foreign physicians from American tourists.

### VACCINATING UNDER RED LIGHT.

A Hungarian physician, Dr. Hugo Goldmann,[1] has been vaccinating children with the exclusion of the chemical light rays. He vaccinated forty children in a room like a photographer's "dark chamber," that is, lighted only by a red lantern. The arms were then dressed with red cloths applied to exclude the light. A slip of photographers' sensitized paper was placed under the dressings to serve as a test for the exclusion of the chemical rays, and also to learn whether the dressings were tampered with. In each instance the pustules, it is said, developed typically, but without the slightest inflammatory reaction. The scar was typical, although small, and there were no general symptoms of any kind. Subsequent inoculation was always negative. The other arm was vaccinated in the usual way on some of the children, with the result that it became swollen and painful, with more or less fever and general symptoms. In some instances the red dressings were removed the second, third or tenth day, and the course of the pustules seemed milder than those of the controls.

### THE POSSIBILITIES OF THE MEDICAL DEPARTMENT OF AN ARMY.

The ideals seem almost attained in the roseate picture presented by Dr. Louis L. Seaman,[2] concerning the remarkable work of the Japanese army medical department. He states that the medical corps has here its rightful position, and has authority over such details as rightly belong to it. He describes—having just returned from Manchuria—the Japanese medical officers testing water supplies in the forefront of the advance guard, inspecting all forage and supplies, and searching every village that is approached by the vast army, lest some insanitary condition imperil the health of the soldiers and thus weaken the fighting force. He calls attention to the result, a mortality due almost entirely to the actual results of combat. The medical work is carried out with skill and speed, details are not neglected, and the rate of recovery from wounds is remarkable. He makes the pertinent remark that the United States Army should improve on Japan's system or else meekly follow it. His words are well worth heeding. If here is an example of the possibilities of the sanitary, prophylactic and reparative aid of the medical profession in warfare, when free from the hindrance of being subordinated to other departments, it should be well studied.

1. Wiener klin. Woch., vol. xvii, No. 36, Sept. 8, 1904.
2. Before the International Congress of Military Surgeons. See Society Proceedings, page 1247.

### CENTENARIANISM.

The secular press is at present, or has been recently, considerably taken up with discussions of methods of obtaining longevity, and one little item which has the alleged authority of Professor Metchnikoff has been widely copied. It is that sour milk as a diet is specially conducive to longevity, more so, in fact, than any other form of food. It is the common drink among the Bulgarians, and they are said to furnish the largest number of centenarians. Some one has suggested that it is the ignorant and indolent who live to a good old age; it is at least exceptional to find a man of science like Chevreul or persons of cultivation or those taking an active part in the life of the age reaching one hundred years or over. Extreme simplicity in the mode of life is conducive to longevity. If a person should follow all the advice given, assuming that all be good, and live under the strenuous conditions of modern civilization, he might increase the chances of living one hundred years by a minute percentage above the present figure of one chance in one hundred thousand. Inasmuch as the conditions usually suggested involve some inconveniences and self-denials—as, for instance, living on sour milk—most individuals would probably not think the game worth the candle. At present, and probably for a long time in the future, the continuance of life to one hundred years or over is a happy—or shall we say an unhappy—accident, and being a centenarian, with its physical infirmities, is at best a mighty lonesome condition.

### RHEUMATOID ARTHRITIS AND NERVOUS DISEASE.

Rheumatoid arthritis has not generally been included in the nervous disorders, and only in one recent text-book—that of Pearce—we find it thus placed. Nevertheless, the conviction seems to be growing that it is at least closely allied to certain of these diseases. Attention has been called to these points by Spiller and Llewellyn Jones, who have pointed out apparent relationships with paralysis agitans, tetany, exophthalmic goiter and symmetric gangrene, and the latter author concludes that rheumatoid arthritis, like certain other toxemias, "tends to pass into that gloomy region of medicine consecrated to system diseases of the cord." There are many reasons for supposing that rheumatoid arthritis is even primarily associated with a neurotic predisposition, and that the toxemia is only an exciting factor. Such are the marked heredity in some cases,

its occurrence in neurotic families (which has been frequently noticed) and the fact that it is not exclusively aroused into existence by toxic agencies, but that traumatism, exposure and nervous and debilitating influences may also be its antecedents. Still more striking in this connection are the facts that in some cases the motor paresis may locally precede the sensory and arthritic symptoms, a fact difficult to explain on the reflex theory of the rheumatic paralyses. That it depends on any special microbe seems highly improbable. Its aggravation by almost any form of active infection is against this hypothesis. While it will probably be long included among the more obscurely known disorders, its proper place, it seems possible, will be found from the balance of evidence to be among the diseases of the nervous system. A thorough pathologic study of cases in all stages of the disease as occasion offers is highly desirable.

### THE ADMINISTRATION OF NITROGLYCERIN.

When it is desired to lower an abnormally high blood pressure and to alleviate symptoms associated therewith, such as headache and giddiness in arteriosclerosis, no drug yields better results, when judiciously employed, than nitroglycerin. Physicians are, however, greatly disappointed at times when they give this remedy, the expected effect not being obtained. It would appear that disappointment is most common when the nitroglycerin is administered in tablet form. An examination of nitroglycerin tablets has revealed the fact that their nitroglycerin content is very variable, and that many of them contain extraordinarily little of the substance. Binz of Bonn, in several instances, was unable to demonstrate any nitroglycerin at all. Von Noorden of Frankfort, in view of these facts, urges the use of an alcoholic solution of nitroglycerin of the strength of 5 per cent. He asserts that when sufficient doses of this are used, one is certain, in suitable cases, of obtaining wholly satisfactory results. He has used the alcoholic solution extensively in his wards during the last few years, and finds its action much more constant and much safer than when tablets are employed. He asserts that it is permissible to give much larger doses than has hitherto been thought warrantable. Thus, when one begins with small doses and gradually increases the amount, as much as 10 milligrams (gr. 1/6) or even 12 (gr. 1/5) of nitroglycerin may be given in twenty-four hours, without any untoward symptoms becoming noticeable. Von Noorden has often been able, in cases with a blood pressure of from 180 to 220, controlled by repeated preliminary measurements, to reduce the pressure by gradually increasing doses of nitroglycerin to 100 or 120, or even lower. He finds, further, that the pressure remains low, not only as long as the drug is being administered, but very often for a time after the medicine has been stopped; it may remain low, as in one case, for eight days after the last dose, in another for twelve days or for two or three weeks, after which nitroglycerin may be begun again. It is hoped that this suggestion may be helpful in removing one of the many uncertainties of pharmacotherapeutics.

### THE ULTRAVIOLET MICROSCOPE.

It often occurs that, soon after the declaration has been made that progress in a certain direction has reached its ultimate limit, new and unexpected discoveries are made. Many had believed until recently that the compound microscope had reached its maximal development, not owing to inability to construct lenses of greater magnifying power, but on account of the supposed impossibility of further illumination. Then came the remarkable invention of the ultramicroscope, which has been repeatedly referred to in these columns, and which renders particles of molecular size, hitherto totally outside the range of sight, visible. Just recently the Zeiss foundation has made available another new instrument, known as the ultraviolet microscope, which represents a most important advance. In this instrument, too, it is the mode of illumination and the method of utilizing it that characterize the invention. The shortest wave-length of light not absorbable by the lenses of ordinary microscopes is 550. By the use of a microscope in which the lenses are made entirely of quartz, it is found that a wave-length of 275 can be employed. The source of light is from cadmium electrodes. Condenser, slide and cover-slip lenses, all are made of quartz. By the naked eye nothing is seen through such a microscope, but by using an ocular containing a fluorescent screen, the rays are converted and a picture of the object may be seen in green. This fluorescent screen is for focusing purposes only; the real results are gained by photography. Photographic plates are very sensitive to the rays sent out from the cadmium electrodes, and the detail obtainable with wave-lengths of 275 is remarkable as contrasted with the detail from light of a wave-length of 550. Indeed, the effects are in many respects totally different from those gotten by ordinary illumination, for, as with the *x*-rays, some structures are penetrable by the cadmium rays and others are not. A wholly new method of differentiating unstained histologic structures is thus afforded us. The photographs already made of cells undergoing karyokinesis, of nostoc and of yeast-cells are full of promise for the future application of the instrument.

## *Medical News.*

### CALIFORNIA.

**Antitoxin for Football Team.**—Because of the prevalence of diphtheria at Leland Stanford University, all the football team have received prophylactic injections of antitoxin.

**Accidents.**—Dr. Willim W. Kerr, San Francisco, was severely cut and bruised in a head-on automobile collision, October 3. ——Dr. Thomas E. Ellis, Elsinore, was thrown from his buggy in a runaway accident, September 29, and fractured his clavicle.

**Cancer-Curer Has License Revoked.**—The State Board of Medical Examiners in 1903 revoked the license of S. R. Chamley, San Francisco, who advertised a "cure-all" for cancer. Chamley carried the matter into the courts and on September 29 Judge Cook of the Superior Court decided that the board acted within its rights and refused to give the petitioner relief.

**Hospital Notes.**—The Pacific Electric Railway System is planning to erect a hospital at Los Angeles to cost $100,000. ——The German Hospital, Los Angeles, was formally opened October 2.——Work on the Merritt Hospital, Oakland, will probably begin this month, as the trustees after long litigation

are now ready to proceed with the execution of the trust.—— Fabiola Hospital, Oakland, will erect a new addition to the nurses' home connected with the hospital, to cost $11,700.

**College Opens.**—The twentieth annual session of the Medical College of the University of Southern California, Los Angeles, opened October 13 with an address by the dean, Dr. Walter Lindley. Among faculty additions are Dr. Luther M. Powers, hygiene and state medicine; Dr. Louis G. Vischer, diseases of stomach and intestines; Dr. Albert Soiland, electro-therapeutics and radiology; Dr. Francis M. Pottenger, pulmonary tuberculosis and climatology, and Dr. W. A. Edwards, diseases of children.

## ILLINOIS.

**Personal.**—Dr. William E. McClelland, Beason, is reported to be seriously ill with appendicitis.——Dr. and Mrs. Rufus J. Coultas, Mattoon, have returned from their trip abroad.

**Physician Wins.**—In the suit instituted by William P. Buchanan against Dr. William O. Beam, Moline, for alleged malpractice in the treatment of a dislocated shoulder, the jury decided in favor of the defendant.

**Smallpox.**—On October 17 Dr. Baker of the State Board of Health reported that there were 56 cases in Belleville and 75 in East St. Louis. In the past few days four deaths from the disease have been reported. Joliet reports five new cases and Peru still has four cases.

**Scalds or Disease?**—The death of a patient at the Illinois Hospital for the Incurable Insane, Bartonville, has excited much comment. The coroner's jury alleged gross carelessness and negligence on the part of the management of the institution, but the assistant physician states that death was due to senile gangrene, and the attendant avers that the water in which the patient was alleged to have been scalded to death was only "milk-warm."

### Chicago.

**Twenty-Minute-Old Baby Vaccinated.**—A smallpox patient at the Isolation Hospital gave birth to a boy baby October 10, and within twenty minutes of its birth the child had been vaccinated.

**Unlicensed Practitioner Fined.**—Mrs. Anna Lietz was found guilty of practicing medicine without a license October 14 and was fined $100 and costs. The fine and costs were suspended. The prosecution was at the instance of the State Board of Health.

**Alleged Abortionist Attempts Suicide.**—Dr. Alois Rasmussen, charged with having caused the death of a woman by an unlawful operation, took morphin while in a cell in Chicago avenue police station October 14, but was revived after much difficulty and will probably recover.

**Davis Memorial Service.**—A service in memory of the late Dr. N. S. Davis will be held Sunday, October 23, in Powers' theater. The principal addresses will be made by Bishop S. M. Merrill of Chicago and the Right Reverend J. L. Spalding, bishop of Peoria. Beside music, there will be five or ten-minute addresses by Drs. Billings, Murphy and others. The committee announces that a cordial invitation is extended to all.

**Deaths of the Week.**—The 424 deaths from all causes reported during the week are 14 more than the total for the week previous. Consumption, 62, shows the greatest increase, 13, followed by bronchitis, 11 more, apoplexy, 9 more, Bright's disease and pneumonia, each 8 more. On the other hand, there were 15 fewer deaths from acute intestinal diseases and 4 fewer from typhoid fever. The deaths from consumption form 14.6 per cent. of the total mortality, but those from pneumonia are only 8.4 per cent. of the total.

## INDIANA.

**Hospital for Children Opens.**—Eleanor Hospital, Indianapolis, devoted to the care of sick children, was opened September 22 by the Flower Mission.

**Richmond Hospital Begun.**—The cornerstone of the hospital given by Daniel G. Reid of New York City to the city of Richmond was laid September 27.

**Accidents.**—Dr. Nathaniel H. Manring, Elwood, was thrown from his buggy October 3 and painfully bruised.——Dr. Emil Schaible, Lafayette, was knocked down by his horse October 1 and painfully injured.

**Disease and Death in September.**—The monthly bulletin of the State Board of Health for September says: "Sickness in the state this September was less than in the same month last year, and was also less than in the preceding month. Diarrheal diseases were most prevalent, and then in regular order follow typhoid fever, rheumatism, tonsillitis, bronchitis, scarlet fever, erysipelas, malarial fever, pneumonia, diphtheria, influenza, whooping cough, measles, puerperal fever and cerebro-spinal meningitis. Typhoid fever was reported present in all but 13 of the 92 counties. There were 137 deaths from the disease and 702 cases reported. The number of deaths is accurate. The number of cases is probably twice as great as here given. The total number of deaths was 2,658, or an annual rate per 1,000 of 12.2. In the corresponding month last year the deaths numbered 2,766, or 13.4 per 1,000. There were 287 deaths from consumption, 20 fewer than in the corresponding month last year. Diphtheria deaths were 12 as compared with 35 in September, 1903. Very little influenza was reported in the month and only one death occurred from this disease. Cancer claimed 115 deaths, violence 146 and smallpox 12. Of the 332 consumption deaths 132 were males and 200 females. One hundred and eighty-five, or 56 per cent., were between the ages of 15 and 40. Eighteen were fathers between the ages of 18 and 40 and they left 36 orphans under 12 years of age. Of the females 59 were mothers between the ages of 18 and 40, and they left 118 orphans under 12 years of age. This monthly havoc wrought by consumption could be reduced 50 per cent. in three years if the people would unite against the disease causing it. Of the 146 violent deaths 3 were murders, 27 suicides, and the remainder accidental, of which railroads killed 31, street cars 1, gunshot wounds 11, electricity 1, drowning 8, and burns and scalds 11. Smallpox is reported in 22 counties, 197 cases in all, with 12 deaths. All of the deaths occurred in Vigo County. At several points the disease appeared in virulent form. Several of the Vigo County deaths were from hemorrhagic smallpox. Cases of confluent and semi-confluent smallpox are now quite common and hemorrhagic smallpox is reported not unfrequently. All of this shows that the disease is becoming more virulent, as has been predicted would be the case.

## IOWA.

**Physicians Purchase Ambulance.**—The physicians of Des Moines have purchased and presented to the city a new $1,000 ambulance.

**State Medical Department Opens.**—The State University of Iowa College of Medicine, Iowa City, opened for the year in its new buildings, September 29. Dr. Elmer F. Clapp delivered the opening address.

**Reference Medical Library.**—Medical men of Dubuque have combined and subscribed for 19 medical journals, which are to be placed on the shelves of the public library for the use of physicians, nurses and druggists and others at the discretion of the librarian.

**"Cancer Doctor" Acquitted.**—"Dr." F. L. Pond, who has been treating cancers in Osage for thirty years, and who was arrested for practicing medicine contrary to the state medical law, was acquitted October 3, his attorney claiming that as he treated cancer by plasters and used no medicine, he could not be said to be practicing medicine.

## MARYLAND.

**Accident.**—Dr. W. W. L. Cissel, Highland, was severely injured in a runaway accident October 8.

**Acquitted of Criminal Charge.**—Dr. Harry N. Rickards, Ridgely, charged with performing a criminal operation, who was admitted to $5,000 bail September 23, the bail being furnished by citizens of the town, was acquitted. No evidence was adduced to connect him with the crime. He was on his way to the St. Louis fair when arrested.

### Baltimore.

**Death Rate High.**—There were 181 deaths last week, an annual rate per 1,000 of 16.44. This is higher than usual.

**Personal.**—Dr. Harry Taylor Marshall has been appointed by the mayor a member of the board of supervisors of city charities, vice Dr. Mactier Warfield, resigned.

**N-Ray a Delusion.**—Prof. R. W. Wood spoke before the Johns Hopkins Scientific Association on October 13 on "The N-Ray Delusion." Professor Wood has personally tested Blondlot's experiments in France and finds nothing in them.

**Portrait of Benefactress Painted.**—The trustees of the Johns Hopkins University and Hospital have had painted by John S.

Sargent a portrait of Miss Mary E. Garrett and have had it hung in the corridor of McCoy Hall at the university in honor of the generosity of Miss Garrett, to which the Johns Hopkins Medical School owes its existence.

## MICHIGAN.

**Information on Pneumonia and Typhoid.**—The State Board of Health has ordered a new edition of 25,000 copies of the leaflet on the restriction and prevention of pneumonia, and also 11,000 copies of the amended pamphlet on the restriction and prevention of typhoid fever.

**Society Elects Officers.**—The Saginaw County Medical Society held its annual meeting at Saginaw October 11 and elected the following officers: President, Dr. William L. Dickinson; vice-president, Dr. Bert B. Rowe; secretary and treasurer, Dr. John N. Kemp, and trustees, Drs. Fletcher S. Smith, Sidney I. Small and James W. McMeekin, all of Saginaw.

**September Mortality of Michigan.**—There were 2,635 deaths registered during September, representing a death rate of 12.7 per 1,000. This shows a slight increase over the preceding month, which had a death rate of only 12.1, but is lower than the rate for September, 1903, which was 13.4 per 1,000. Important causes of death were as follows: Tuberculosis, 192; typhoid fever, 63; diphtheria, 36; scarlet fever, 6; measles, 4; whooping cough, 4; pneumonia, 74; diarrhea, 318; cancer, 163; accidents and violence, 158. Smallpox caused 3 deaths during the month and 2 deaths were reported from tetanus.

**Disinfection and Isolation.**—Secretary Baker of the State Board of Health, at its meeting October 4, presented results of compilations of the evidence in the special reports of health officers for several years, on the relative importance of disinfection and isolation in measles, and in whooping cough, which indicate that prompt isolation is of greater importance in the restriction of measles and also of whooping cough than is disinfection. This indicates that the germs of these two diseases do not maintain their vitality for such long periods of time as do the germs of diphtheria and scarlet fever. On the other hand, measles is spread directly from the patient in the early stage of the disease. Eighteen times as many cases occurred in those outbreaks of measles in which both isolation and disinfection were neglected as in the outbreaks in which they were both enforced. Although isolation was of most importance, there were 25 per cent. less cases where both isolation and disinfection were enforced than where only isolation alone was enforced. Although isolation proved to be of more importance than disinfection for the restriction of whooping cough, there was an average of nearly one case less per outbreak where both isolation and disinfection were enforced than where isolation alone was enforced.

## NEW YORK.

**The Amalgamation in New York Apparently Indefinitely Postponed.**—The annual meeting of the New York State Medical Association was held this week. Our correspondent telegraphs that the council and fellows of the association, at its meeting on Monday last, received the report of the Committee on Amalgamation of the New York State Medical Association and of the Medical Society of the State of New York. The committee reported that before a legal union of the organizations could be effected certain changes in the by-laws of the association were necessary to make them conform to the corporation laws of the state of New York. Considerable discussion ensued, but it was evident that nothing could be legally accomplished until after the annual meeting in October, 1905. The report of the committee was accepted. A motion to continue the committee with power to act was defeated.

### New York City.

**Free Clinical Lectures.**—The New York Skin and Cancer Hospital announces a sixth series of clinical lectures on diseases of the skin, to be given by Dr. L. Duncan Bulkley in the Out-Patient Hall of the hospital, on Wednesday afternoon at 4:15 o'clock, commencing November 2. The course will be free to the medical profession.

**New Home for Crippled Children.**—The New York Home for Destitute Crippled Children has completed negotiations for the property at West Sixty-first Street. It proposes to open the home in about three weeks with fitting dedicatory ceremonies. The dispensary is now at Lexington Avenue and Fiftieth Street.

**Impure Milk Traffic.**—Judge Hinsdale has declared in Special Sessions Court that unless the practice of selling impure milk is stopped, the punishment hereafter will be imprisonment instead of fine. Despite this statement he had before him on the following day 50 grocers and others, most of whom were punished by the infliction of the maximum fine.

**Contagious Diseases.**—There were reported to the sanitary bureau for the week ended October 8, 291 cases of tuberculosis, with 157 deaths; 248 cases of diphtheria, with 34 deaths; 136 cases of typhoid fever, with 26 deaths; 103 cases of scarlet fever, with 6 deaths; 44 cases of measles, with 3 deaths; 16 cases of varicella, one death from smallpox and 10 deaths from cerebrospinal meningitis.

**Personal.**—Dr. Alexander E. Macdonald retired from the superintendency of Manhattan State Hospital East, Ward's Island, October 1, and was succeeded by Dr. J. T. W. Rowe, who was appointed acting superintendent.——Drs. Seth D. Close and Charles H. Goeller, while driving, were struck by an electric car. Dr. Close is in a serious condition as the result of a fracture of the skull and internal injuries.

**More Water Needed.**—The danger of a water famine is no mere bugaboo of periodic recurrence, but an actual menace that engineers declare to be too real. On several occasions within recent years, when the rainfall has been below normal for considerable periods of time, the city has been within a day or two of a water famine, but the public has not known it. Engineers are now surveying for the proposed Paterson and Cross River aqueduct, which will add about 50,000,000 gallons daily to the present supply.

**Tent Life for Babies.**—Last summer the experiment of putting babies under canvas was made at Bellevue Hospital, a tent similar to those used by consumptives being used. The mortality records for the first month showed 46 babies cared for, with 11 deaths, whereas the usual mortality is 60 per cent. The children were taken into the hospital recently during the cold weather, but the results were so unfavorable that it has been decided to make a few changes in the tent, to surround it with steam pipes, and to continue its use during the winter months.

**Crusade Against Adulterated Liquors.**—As a result of a large number of sudden deaths from drinking adulterated whisky in the Strikers' Farm district there promises to be a general crusade against adulterated liquors. It is probable that the law-making powers, both state and national, will be asked to pass more stringent laws against the adulteration of liquors and their sale in bottles which do not reveal their true contents. The results of analyses of the stomach contents of victims, so far as have been completed, show that those of at least three of the supposed victims contained sufficient wood alcohol to cause death, and wood alcohol was also found in the whisky, though there is evidence that this wood alcohol had been used only for the past four weeks.

**Drug Fraud.**—Seven prisoners in all have now been arrested on the charge of counterfeiting drugs and patent medicines, and are under $2,000 bail each. Most of the drugs counterfeited were those prescribed for producing sleep, allaying fever and stimulating heart action. In addition to the alleged spurious drugs there was a large quantity of literature and merchandise handled which subject the dealers to criminal prosecution. The drugs have been sold under false labels to druggists all over the country in no less than 1,500 drug stores. The attorney for one drug firm, whose drugs have been counterfeited, states that $100,000 has been spent during the past year in getting evidence against these "drug pedlers." It is expected that an investigation of drug stores in this city will lead to many more arrests.

**New Appointments at the College of Physicians and Surgeons.**—Dr. Gorham Bacon has been appointed professor of otology; Dr. Joseph A. Blake, professor of surgery; Dr. George E. Brewer, professor of clinical surgery; Dr. Frederick R. Bailey, adjunct professor of normal histology; Dr. James R. Hayden, professor of genito-urinary diseases; Dr. Samuel W. Lambert, professor of applied therapeutics; Dr. Arnold Knapp, professor of ophthalmology; Dr. Eugene Hydenpyl, adjunct professor of pathological anatomy; Dr. Harry McMahon Painter, professor of clinical obstetrics; Dr. Frederick Peterson, clinical professor of psychiatry; Dr. John S. Thacher, professor of clinical medicine; Dr. Francis Carter Wood, adjunct professor of clinical pathology, and Dr. Russell Burton-Opitz, adjunct professor of physiology.

## OHIO.

**Munificent Donation.**—Dr. Charles E. Slocum, Defiance, has given to the new city library of his home city his private

scientific, historic and reference library and museum, valued at $25,000.

**Mercy Hospital Open.**—On October 19 the new Mercy Hospital, Hamilton, erected at a cost of nearly $125,000, was formally thrown open to the medical profession. Drs. E. Gustav Zinke and David I. Wolfstein, Cincinnati, were the chief speakers.

**Resolutions Regarding Dr. Hyndman.**—The faculty of the Medical College of Ohio, Cincinnati, at a special meeting passed resolutions expressive of their grief in the death of Dr. James G. Hyndman, of their admiration for his high intelligence, skill and professional attainments, and of their appreciation of his goodness of heart, generosity of soul and sincerity of friendship.

**Assistant Physicians Meet.**—The Association of Assistant Physicians of the Ohio State Hospitals held its fourth session at Columbus, October 5 and 6. The dietary committee was enlarged so as to include one member from each state hospital, and Dr. Rudolph W. Holmes, Gallipolis, chairman of the special committee chosen to represent the association at the meeting of the Ohio State Medical Association, reported that the latter had passed a resolution indorsing the objects and work of the assistant physicians' organization.

## PENNSYLVANIA.

### Philadelphia.

**Bequests.**—By the will of John E. Garrett the Philadelphia Home for Incurables receives $5,000, and St. Agnes' Hospital, St. Mary's Hospital and the Methodist Hospital $100 each.

**Personal.**—Dr. William Pickett was appointed professor of neurology and mental diseases in the Medico-Chirurgical College, succeeding the late Dr. F. Savary Pearce.——Dr. August F. Muller is seriously ill at his home in Germantown.

**Honor for Dr. Chapin.**—A banquet will be given Dr. John B. Chapin, chief physician of the Pennsylvania Hospital for the Insane, in honor of the fiftieth anniversary of his work among the insane, early in November. He will also be presented with a portrait of himself.

**Health Report.**—The total number of deaths reported for the last week reached 414. This is an increase of 34 over those of last week and of 27 over the corresponding period of last year. Pneumonia and diseases of the lungs caused the greatest mortality. Acute affections of the lung caused 36 deaths and tuberculosis 45. There was an increase of 20 cases of diphtheria, but a decrease in the other contagious diseases. In all there were 211 cases of contagious disease, with 23 deaths, as compared with 210 cases and 17 deaths the preceding week. One case of smallpox was reported.

**Pure Food Indictments.**—Twenty indictments for alleged violation of the pure food laws, involving nineteen persons, were found by the grand jury. The offenses named in the indictments were the selling of adulterated meats and milk, and oleomargarin for butter. Efforts are being made by the manufacturers of oleomargarin to have the 10-cent tax rate per pound repealed at the coming session of Congress. Dr. Warren, dairy and food commissioner, asserts that he will endeavor to combat their efforts and have the bill stand. The bill imposes a national tax of 10 cents a pound on colored oleomargarin, much of which has been sold for pure butter.

**Railroad Teaches First Aid to Injured.**—The Pennsylvania railroad has instituted a system for giving first aid to the injured. The plan includes the equipping of all baggage, mail, express, work and wrecking cars, terminal stations, yard offices, shops and important stations, with stretchers. Locomotives, terminals and important stations will also be provided with medical boxes containing first-aid material. The order also requires all brakemen, conductors, engineers, firemen and station employes to attend lectures by members of the medical staff on first aid. These lectures will be given every week. Dr. E. C. Town began his series of lectures here and classes of 300 and 400 members were instructed. The medical box contains six sterilized packets, each packet containing 1 large triangular bandage, 1 ordinary roller bandage, 2 compresses and 2 safety pins. Lectures were also delivered by Dr. H. W. Pownall to the employes at Altoona October 12.

## GENERAL.

**Warning Concerning a Fraud.**—A physician at Elroy, Wis., has been victimized by a person purporting to be an agent of Schering & Glatz, New York. This person obtained money on the representation that the firm would send a formalin lamp as a free sample to any physician who would pay the transportation charges. The firm announces that none of their representatives ask for or accept money under any circumstances from the physicians on whom they call and that anyone claiming to be their agent who does so is a fraud.

**Panama Sanitation.**—In a recent report to the President the Isthmian Canal Commission stated that between 200 and 300 engineers and from 1,000 to 1,200 laborers are engaged in engineering and construction work, and on sewerage and water supply. This number is exclusive of the sanitary force, which numbers over 500 and which is employed in cleaning the isthmus and putting it in good sanitary condition and as nurses and attendants in the hospitals. A reservoir is being constructed in the valley of the upper Rio Grande, which will furnish a minimum supply of 2,000,000 gallons daily for the city of Panama.

**Dermatologists to Meet in New York.**—The Sixth International Dermatological Congress will meet in New York City in 1907, under the presidency of Dr. James C. White, Boston. The congress of 1904 has just been held in Berlin and the invitation to the congress was extended by committees representing the American Dermatological Association and the Section on Cutaneous Medicine and Surgery of the American Medical Association. The invitation was accepted without objection from anyone and a successful session is anticipated. The committee of the American Dermatological Association was Dr. J. N. Hyde, Chicago, chairman; Dr. H. W. Stelwagon, Philadelphia; Dr. Gilchrist, Baltimore; Dr. J. A. Fordyce, New York City.

## CANADA.

**Antisanitarium League at Kamloops, B. C.**—The proposition to erect a sanitarium for the care and treatment of cases of tuberculosis at Kamloops has resulted in the organization of an antisanitarium league in that thriving British Columbia city. Recently a deputation from the league waited on the provincial secretary opposing the establishing of a sanitarium at Kamloops, with the result that the provincial secretary promised to have the matter brought to the attention of his colleagues.

**Appointments.**—Dr. R. W. Bruce Smith, assistant physician at the Brockville, Ont., Asylum for the Insane, has been appointed inspector of prisons and public charities in Ontario, succeeding Dr. T. F. Chamberlain, who has resigned owing to ill health.——Dr. J. C. Mitchell of the Toronto Asylum succeeds Dr. Smith at Brockville, and Dr. Harris, at present relieving officer for the public institutions, will succeed Dr. Mitchell.——Dr. J. B. McConnell, Montreal, vice-dean of Bishop's College Medical Faculty, has been elected second vice-president of the College of Physicians and Surgeons of Quebec.——Dr. J. V. Anglin, assistant superintendent at the Protestant Hospital for Insane, at Verdun, Quebec, has been appointed medical superintendent at the Provincial Hospital for Nervous Diseases at St. John, N. B.

## FOREIGN.

**Cholera at Port Arthur.**—A recent cable report states that cholera has appeared at Port Arthur. Up to September 19 there were only a few cases, but fears are entertained that the disease may become epidemic.

**Cholera in the Trans-Caspian District.**—Several cases of cholera have been reported from Merv, Askhabad, Bokhara and other towns in that region. These places are markets from which large shipments of wool to the United States are made through the port of Batoum.

**Cholera in Persia.**—A Russian exchange states that 10 per cent. of the population of Teheran has succumbed to cholera. All the papers published there, even the official organ of the government, have suspended publication. Nearly a quarter of a million persons have died from cholera in Persia since the epidemic began.

**Decrease in Population of Manila.**—A recent report of the board of health of Manila shows that in May, 1904, the deaths outnumbered the births by 146. Fifty-three per cent. of all deaths occurred in children under 1 year of age. On account of the prevalence of smallpox all officers and employes of the civil government were vaccinated.

**Honors for Gaffky.**—Professor Gaffky, until recently of Giessen, has now assumed charge of the Berlin University Institute for Infectious Diseases, in which he succeeds Robert Koch, his former master and collaborator. The city of Giessen has con-

ferred honorary citizenship on Gaffky in token of his services in public health matters during his residence there.

**Climography.**—This is the term coined by Professor Pensuti of Rome to express his method of bedside annotations. It is an ingenious system of graphic exposition in a condensed form of the symptoms, temperature and all the pathologic manifestations presented by the patient. Its simplicity and accuracy commend it for general adoption as a saving of time, and Baccelli, Alessandri and other Italian clinicians are already using it.

**A Medical Editor Summoned to the Seat of War.**—Dr. Rudolf Wanach, the editor of the *St. Petersburger medicinische Wochenschrift*, has left for the far east, and his place has been taken by Dr. E. Blessig. The last number of the weekly contains an article from Dr. Zoege von Manteuffel, dated August 14, written at Liaoyang. Later advices state that he with his "flying column," the field hospital and the 1,400 severely wounded inmates, were obliged to flee before the bombardment not long after, trains being placed at his disposal. The hospital is now settled on the railroad line to the north of Mukden.

**Suits Against Physicians in Germany.**—The editor of a Frankfurt paper was sued by a physician whom he had accused of "a lack of human kindness." The defendant was acquitted, as the judge decreed that he had established the truth of his statement by proving that the physician had refused to treat a sick housemaid. Another physician, in Cologne, was sued by a "nature healer" on account of the epithet "charlatan" (Kurpfuscher), applied to the latter by the former. The judicial decision was to the effect that this term is not necessarily always an insult, but in the case in question there was no doubt that it was such, both subjectively and objectively.

**International Congress of Ophthalmology.**—The tenth international congress of ophthalmology was held at Lucerne, Switzerland, September 13 to 17. It was opened by the chief executive of the country, who is a physician, Dr. Deucher. He greeted the 500 members on behalf of the state and also of the medical profession. The question as to the amount of indemnity in industrial insurance for the loss of an eye was referred to committees to be appointed in each country, as the conditions vary so widely in different lands. The notation of visual acuity was another subject discussed with great interest, but no final decisions were adopted. The next congress will be held at Naples in 1909.

**International Congress of Dermatology.**—The fifth triennial international congress of dermatology was held as announced, September 12 to 17, at Berlin, with a large and brilliant attendance. Among the more novel communications was one from Rizzo and Cippolina of Genoa, describing what they believe to be successful serum treatment of syphilis. Twelve patients in the secondary stage, not otherwise treated, recovered under the serotherapy. One patient with a tertiary nasal affection was cured after a dozen injections of serum. The principal addresses are being published in the specialist journals and will be duly abstracted in our current literature department as they appear. The next congress will be held at New York in 1907.

**Retirement of the Medical Director of the Berlin Charita.**—After eleven years of indefatigable service Dr. Schaper has retired from the medical leadership of the great Berlin Charité. He was also president of the National Public Health Association and served on the boards of several other hospitals. The reconstruction of the Charité has been conducted under his administration and many innovations are due to him which have advanced the progress of medicine. He has been connected with the Charité in some capacity for thirty-three years, and has written its history. In the management of their cities and hospitals the Germans certainly represent an unattainable ideal for countries under the dominance of the ward politician.

**Disinfection of Public Library Books.**—In its paternal care of the public health in every respect, except in protecting the public against quacks, the Prussian government has been debating the question of disinfection of public library books. No case of the transmission of tuberculosis to healthy subjects from such books is known, and as authorities differ in respect to the danger of infection from this source, and as it is so difficult and expensive to disinfect books thoroughly, the authorities have decided not to attempt it. All worn and soiled books will be withdrawn from circulation as soon as possible, but no disinfecting measures will be used, although the tests at the Institute for Infectious Diseases showed virulent tubercle bacilli on many books in use over two years.

**Finsen's Funeral.**—From the remote, icebound solitude and poverty of Iceland and the Faroe Islands to a crowded funeral at 43, in one of the capitals of Europe, at which the mourners were crowned heads and an army of grateful patients—Finsen's career reads like a romance. His funeral was an imposing public ceremony, attended by the kings of Denmark and Greece, the queen of England, Prince Henry of Prussia as the representative of Kaiser Wilhelm, and numerous other princes and their representatives. The king of England was duly represented and sent an autograph letter of condolence to Finsen's widow. Queen Alexandra attended in person. The entire cabinet attended in a body with other high dignitaries, and the delegates from medical and scientific societies could scarcely be numbered.

**Discrimination Against Young Candidates for the German Sanatoriums.**—We learn that the great model sanatorium at Beelitz has found it impossible to keep the younger inmates from flirting. In spite of the restrictions and the segregation of the sexes, the young men and women found opportunities to meet, and their frivolity not only interfered with their own progress toward recovery, but annoyed the other inmates. Consequently the officials announce that as the applicants always far outnumber the places at their disposal, in future all below a certain age will be rejected. They base this measure on the grounds that there is much greater probability of a cure for an older than for a young person. Another sanatorium has reserved a department for young subjects, but this by no means supplies the demand.

**Lunacy in New Zealand.**—In the annual report of the inspector of hospitals and lunatic asylums it is stated that in 1903 one person in every 284 of the population, exclusive of Maoris, was registered as afflicted with lunacy; while in 1900 only one person in every 288, exclusive of Maoris, was so registered. This increase is not so great as during any recently preceding same number of years. In the final quarter of the nineteenth century the insane rate of the colony increased from 20 to over 32 in each 10,000 of the population, fully 60 per cent. The New Zealand reports give side by side the records of Europeans and natives. It is thus shown that the Maori is much less subject to insanity than the European. The comparative immunity of the natives is sufficient to reduce the rate for the total population of 850,000, to one in 296. The total cost for each patient for a year averages £30 ($150); the cost, less receipts, is only £17 ($85).

**Yellow Fever in Brazil.**—Yellow fever is endemic in Para, Brazil, but not a single case has occurred in the interior of the state, the disease being strictly limited to the city of Para. Foreigners and, in general, new arrivals in the city form the greater number of victims. This is attributed to the complete neglect on their part of the proper prophylactic and hygienic measures supplemented by such imprudences as exposure to drafts while perspiring freely and drinking large quantities of iced beer. The *Stegomyia fasciata*, or so-called yellow fever mosquito, bites in the daytime and is attracted by the odor of human perspiration. As the mosquitoes with which strangers are familiar usually bite at night, they are not prepared for the attack of the stegomyia and merely complain of the inconvenience. They object to the use of mosquito netting during the daily siesta in complete ignorance of the danger incurred by not using it.

**International Congress of Otology.**—The seventh international congress of otology was held at Bordeaux in August. Politzer, Gradenigo and Delsaux presented a committee report on a formula for acumetric notation, but the matter was finally referred to the next congress, which will be held at Budapest in 1908. The Lenval prize was divided between Gellé of Paris and Alexander of Politzer's clinic at Vienna. Delie of Ypres reported a dozen cases of neurosis to show the evil effects of the abuse of tobacco on the auditory nerve. Lermoyez and Bellin described 2 cases of acute otogenic meningitis treated by craniotomy and lumbar punctures (See page 924). The improvement was marked and permanent under these measures. E. J. Moure of Bordeaux was the president of the congress, and a full report was promptly published in his *Revue Hebdomadaire de Laryngologie*, Nos. 34 to 37. A number of Americans took a prominent part in the proceedings, including Dench, Knapp and Snow.

**Hygienic Measures in France.**—When the children reassembled this fall in the schools of France they found that china tablets had been placed on the walls giving various hygienic rules, especially cautioning against spitting on the floor. In the upper grades each pupil is expected to be weighed every quarter and the height and chest measure taken. A health record chart is given to each child, the chart accompanying him

from class to class and year to year. Similar rules are now enforced in the army. The men are to be weighed at certain intervals and those showing stationary or declining weight are kept under supervision and appropriate measures instituted, being temporarily dismissed from the service on suspicion of tuberculosis. The postoffice authorities have abolished dry sweeping and dusting. The floors must be swept with damp sawdust daily and wiped with 2 per cent. lysol once a week. A German exchange comments on these various measures that France is certainly taking the lead in civilization.

**First Congress of the International Surgical Association.**—The first congress of this new organization is to be held at Brussels in September, 1905. Prof. T. Kocher of Berne will preside, and it is announced that the discussions will be restricted solely to the six questions on the order of the day. W. W. Keen makes the first address, with Sonnenburg of Berlin, de la Torre of Madrid and Depage of Brussels, on the theme: "Value of the Blood Count for Surgery." The second question is "Treatment of Hypertrophied Prostate," with addresses by R. Harrison, Rovsing of Copenhagen and v. Rydygier of Lemberg. The third theme is "Surgical Intervention in Non-Cancerous Stomach Affections," with addresses by Mayo Robson, von Eiselsberg, Mattoli, Montprofit of Angers, Rotgans of Amsterdam and Jonnesco of Bucharest. The fourth subject is "Treatment of Tuberculosis of the Joints," with addresses by Bier of Bonn, Broca of Paris, Bradford of Boston, Codivilla of Bologna, and Willems of Ghent. The "Treatment of Peritonitis" will be presented by Lennander of Upsala, Friedrich of Leipsic, Lejars of Paris, McCosh of New York, Krogius of Helsingfors and de Isla of Madrid. The final theme is "Diagnosis of Surgical Renal Affections," with addresses by Albarran of Paris, Kümmel of Hamburg, Giordano of Venice and Lambotte of Brussels. All communications for the congress and inquiries should be addressed to Dr. C. Willems, 6 Place St. Michel, Ghent.

**Lead Poisoning from Wall Paper.**—Professor Lefour of Bordeaux had occasion to treat a pregnant woman for obstinate intestinal colics and constipation, with the death of the fetus just before the seventh month. The husband also presented intestinal symptoms. Both husband and wife were previously healthy, and occupied a house which had been recently renovated and papered, the papers selected in Paris, Bordeaux and London with great care. After the abortion they traveled for a few months, both in good health, but as soon as they settled down again at home the symptoms reappeared. The idea finally occurred to the physician that the golden yellow velours paper on the wall might be the source of the trouble, and, in fact, 1.5 gm. of lead were found in each square yard. The paper in the adjoining rooms contained about one-third of this proportion of lead. Tests of eleven other papers from the stores showed from 1.2 to 7.68 gm. of lead per square meter in nine of the papers and copper in the others. The largest proportion of lead was found in the velvety style of papers. He does not hesitate to ascribe the death of the fetus and the illness of the parents to lead poisoning, and is confident that it is much more frequent than generally supposed. As lead poisoning has such a pernicious action on a pregnancy, he publishes his report in the *Obstétrique* for September to call the attention of obstetricians to the matter.

## LONDON LETTER.

### Contamination of the Atmosphere of Rooms by the Saliva.

The report of the medical officer of the local government board, which has just been published, contains a report by Dr. Mervyn Gordon on the contamination of the atmosphere of inhabited rooms by coughing, sneezing, singing and speaking, by which drops of mucus and saliva, impregnated with the bacteria of the mouth and air passages, and occasionally pathogenic microbes, are disseminated. He first examined the saliva of healthy persons to ascertain what microbes are most abundant therein and whether any bacterium by its abundancy and constancy is to be regarded as characteristic of human saliva. He found that streptococci of various descriptions are very abundant and that the streptococcus brevis is commonly present to the amount of at least 10,000,000 to the cubic centimeter, and is readily detectable by the changes of color it produces on culture media. He found that minute quantities of saliva can be recognized by the presence of this streptococcus, and applied these facts in ascertaining the effects of loud speaking in disseminating droplets of saliva. He ascertained by means of Petri dishes charged with nutrient broth and set about the room that before "oration" the air did not contain the streptococcus brevis nor other salivary streptococci in suspension. Then by similar distribution of culture media during and immediately after "oration" by a series of speakers he showed that droplets of saliva were disseminated throughout the air to a distance of 40 feet from the speakers. In this method of identifying the droplets Dr. Gordon has discovered a gauge of air contamination by people which may ultimately prove to be of great practical importance and far more trustworthy than the tests of mere gaseous impurity or of excess of $CO_2$ which has hitherto been relied on.

### Professor Osler's Appointment to the Chair of Medicine at Oxford.

Professor Osler's appointment is received on all sides with the greatest satisfaction. The Oxford Medical School had fallen into decadence, from which it has begun to recover. This was due principally through the untiring efforts of the late Professor Acland, a predecessor of Professor Osler in the chair of medicine. In recent years the school has made great progress. But the appointment of Professor Osler is recognized as an impulse to its development the extent of which is difficult to exaggerate and which could have been obtained in no other manner. His almost unique combination of the highest qualities of the clinician and the scholar, his literary ability and his merits as a teacher have long been appreciated in this country, and peculiarly fit him for the chair, rendering him a worthy rival of the professor of medicine in the sister university of Cambridge, Dr. Clifford Allbutt, whose literary powers stand quite alone amongst the physicians of this country. The universal verdict is that the appointment is our gain and America's loss.

### Trypanosomiasis.

The Liverpool School of Tropical Medicine has just issued an important series of reports on trypanosomiasis. The discovery of trypanosomes in the cerebrospinal fluid of cases of sleeping sickness by the commission of the Royal Society has previously been reported in THE JOURNAL. In 1901 Dr. J. E. Dutton while working in Gambia on one of the many expeditions sent out by the Liverpool School of Tropical Medicine for the investigation of tropical diseases, discovered trypanosomes in the blood of a European. In consequence an expedition consisting of Drs. Todd and Dutton was sent in 1902 by the school to Senegambia to prosecute further researches in trypanosomiasis. A valuable report was published in 1903 and contained the pathogenic trypanosomata of man and animals, with a description of several new species. Before the return of this expedition the discovery of trypanosomes in the cerebrospinal fluid of cases of sleeping sickness in Uganda caused the subject to assume great importance. In the Congo Free State the native population has from time to time suffered from fatal epidemics of the disease. The king of the Belgians, therefore, in 1902 sent an invitation to the school to send an expedition to that country. Drs. Todd and Dutton were recalled from Senegambia and left for the Congo in 1903, where they were joined by Dr. Christy, who had previously served on the Royal Society's commission in Uganda. A special hospital was erected by the state and facilities given for the study of a large number of patients. The results of the investigations are incorporated in the volume now issued. They show the distribution of sleeping sickness, trypanosomiasis, the symptoms in all stages, in both Europeans and natives, and the relation of sleeping sickness to trypanosomiasis. At the same time the school resolved to continue in Liverpool the researches began by Drs. Dutton and Todd in Gambia. Dr. Thomas was appointed to conduct the work, with the assistance of Dr. Linton. The two groups of observers have throughout worked together, and in order that comparable data might be obtained selected cases of sleeping sickness were, by permission of the Congo authorities, sent to Liverpool. Numerous observations show that the parasite identified with sleeping sickness in Uganda and the Congo does not differ from that described by Dr. Dutton in Gambia. The therapeutics receives considerable attention and experiments are in progress with a view to finding a remedy which may be as efficient as quinin is in ague. A variety of drugs has been used with more or less success. So far arsenic and trypan red appear to be the most useful. Under their administration the parasite disappears from the blood for a time and the life of the animal is prolonged, but a cure has not been obtained. A combination of the two appears to give the best results. A large number of animals infected with different trypanosomes is under treatment. The report seems to show conclusively that sleeping sickness is trypanosomiasis, although there are

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severe and fatal cases of the latter disease in which somnolence does not occur. The symptoms and danger appear to bear some relation to the greater or less abundance of the parasites and to become more serious when these have gained access to the cerebrospinal fluid. The parasites may be present in the blood of deeply-seated organs when they are not discoverable in that drawn from a surface puncture. Their frequent temporary disappearance from the surface blood renders it difficult to be sure of their absence from the system. One of the most curious results of the expedition is the discovery of a blood-sucking larvæ of nocturnal habits which is abundant in many parts of the Congo and during the day is concealed in the cracks of the native floors, from which it may be dug out full of bright red blood, showing the abundance of its previous night's meal. It is the larva of the Glossina fly, which appears to be harmless in the imago stage.

### The Institute of Hygiene.

The Institute of Hygiene which has been founded is a new departure. The object is to advance various branches of popular teaching in hygienic matters and the first step has been the establishment of a permanent exhibition of hygienic products and applicances. It is in charge of a physician, who explains the character of the various exhibits. It has been opened by Sir Joseph Fayrer, who stated that it had been founded under the auspices of a medical council and pointed out that the permanent exhibition of hygienic products and appliances will be of advantage to doctors and others interested in hygiene by demonstrating the progress made in the various departments of manufacture auxiliary to their work. The value of every exhibit is investigated by an examining board and only those of high standard are admitted. It is recognized that any exhibit passed by the board may be used and recommended by doctors. A certificate is granted to exhibitors which constitutes a valuable award of merit. The exhibition is intended, 1, to supply medical men with practical information so as to enable them to keep abreast of the times in regard to the value and progress made in the various manufactured products and articles which affect health; 2, to supply nurses with useful knowledge in regard to products and appliances required by invalids; 3, to supply the general public and especially the large and increasing number who are interested in dietetics, clothing, appliances and articles affecting the health of the person or home with authoritative information as to their value and use. The exhibition is situated in Devonshire Street, Harley Street, in the heart of the medical center of London.

## Marriages.

E. S. Fitzmaurice, M.D., Mohall, N. D., to Miss Alice Bryant of Chicago.

D. C. Martin, M.D., to Miss Annie E. Payne, at Stewartstown, Pa., October 5.

John Collison Joyce, M.D., to Miss M. Amy Knight, at Baltimore, October 4.

Jesse E. Herbert, M.D., to Miss Claudia Rice, at Berkeley Springs, W. Va., October 12.

Harry Norbert McDevitt, M.D., to Miss Isabel Carey Smith, at Baltimore, October 10.

C. Naumann McCloud, M.D., to Miss Agatha De Lambert, both of St. Paul, Minn., October 18.

George W. Lauterbach, M.D., to Miss Mary Alberta Heckman, both of Baltimore, October 18.

Albert R. Craig, M.D., Philadelphia, to Miss Frances Boyd Foster of Newton, Mass., October 12.

William T. Kirby, M.D., Chicago, to Miss Margaret Loretta Durkin of Waukegan, Ill., October 19.

Thomas Edward Sample, M.D., Crete, Neb., to Miss Christine Tuckey of Omaha, Neb., October 5.

Clarence T. Hutchins, M.D., to Miss Annette Elizabeth Northam, at Solomons, Md., October 11.

Marshall B. West, M.D., Catonsville, Md., to Miss Anne Evans Bresee, at Baltimore, October 11.

W. Bruce Glotfelty, M.D., Sharpsburg, Pa., to Miss Edna Anna Hay, at Hagerstown, Md., October 5.

Joseph Coles Brick, M.D., Philadelphia, to Miss Laura Brooke Clingan of Birdsboro, Pa., October 1.

Lylburn Hall Bewley, M.D., Atlantic City, N. J., to Miss Bertha Bellis of Philadelphia, Pa., October 6.

H. F. Taylor, M.D., Ridley Park, Pa., to Miss Katherine Grace Manly of West Chester, Pa., October 12.

Nathan Winslow, M.D., Baltimore, to Miss Margaret Kable Massey, at Sandy Spring, Md., October 5.

Charles Sellman McCollum, M.D., to Miss Marie Elizabeth Turlington, both of Baltimore, at Wilmington, Del., June 8.

## Deaths.

**Richard Henry Thomas, M.D.** University of Maryland Medical Department, Baltimore, 1875, dean and professor of diseases of the throat, nose and chest of the Woman's Medical College, Baltimore, also a prominent minister of the orthodox Society of Friends, son of the late Prof. R. H. Thomas, M.D., of the University of Maryland, died at his home in Baltimore, October 3, from chronic valvular disease of the heart, after an illness of eight months, aged 51.

**Edgar D. Carr, M.D.** Rush Medical College, Chicago, 1887, a member of the American Medical Association, and of the Decatur Medical Society, one of the most prominent physicians of Macon County, Ill., was found dead in bed from heart disease at his home in Argenta, October 11.

**Gerhard Heinrich Eiskamp, M.D.** College of Physicians and Surgeons, Keokuk, Iowa, 1892, a member of the American Medical Association, formerly a lecturer in his alma mater, died at his home in Washington, Iowa, October 9, from Bright's disease, aged 49.

**Edward J. Bolt, M.D.** Harvard University Medical School, Boston, 1900, while delirious after a prolonged spree, shot and seriously wounded two of his friends, and then committed suicide by taking carbolic acid in his rooms in Springfield, Mass., October 8, aged 29.

**Albert E. Mallory, M.D.** McGill University Medical Department, Montreal, 1872, registrar of East Northumberland for 16 years and member of Parliament for Northumberland, died at his home in Calborne, Ont., October 4, after an illness of three days.

**Thomas Devereux Hogg, M.D.** Jefferson Medical College, Philadelphia, 1847, one of the oldest and most respected physicians of Raleigh, N. C., was run over by a locomotive near his home, September 30, and instantly killed, aged 80.

**Upton Heath Bolt, M.D.** University of Maryland, Baltimore, 1850, of a Baltimore family, but a resident abroad for a great many years, died at Leghorn, Italy, October 15.

**William Bishop, M.D.** Howard University Medical Department, Washington, D. C., 1875, died from consumption, October 6, at his home in Annapolis, Md., aged 60.

**Charles E. Elliott, M.D.** Charity Hospital Medical College, Cleveland, 1869, died at the home of his son in Wellington, Kan., October 8, from consumption, aged 70.

**William Wilmot Estabrook, M.D.** Pennsylvania Medical College, Philadelphia, 1847, clergyman and surgeon, died at his home in Chicago, October 10, aged 77.

**Rabin A. Burge, M.D.** Medical College of Georgia, Augusta, 1902, of Graves, Ga., died in Brooksville, Fla., October 6, from typho-malarial fever.

**Robert H. Daintree, M.D.** Pennsylvania, 1875, died at his home in Lewiston, Maine, October 3, after a short illness, aged 53.

**Isaac Newton Hugg, M.D.** Philadelphia, 1869, died at his home in Camden, N. J., from uremia, October 15, aged 64.

**William Hunn, M.D.** University of Louisville, Ky., 1856, died at his home in Hustonville, Ky., aged 73.

**Edward G. Nelson, M.D.,** died at his home in Baltimore, October 6, aged 57.

### Deaths Abroad.

**T. Carbone, M.D.,** professor of pathologic anatomy at Pisa, succumbed September 7 to the effects of a scratch received at the necropsy of a subject with Malta fever.

**A. Gombault, M.D.,** died at Ivry, September 20, aged 60. Although the name of Gombault is scarcely known outside of France, yet to him science owes some of its most important advances in the last quarter century. He was a specialist in pathologic anatomy and histology, but remained all his life an

enthusiastic laboratory worker and teacher, publishing very little over his own name. To his researches Charcot, Hanot, Debove and others owed the scientific basis for most of their brilliant work.

## Book Notices.

THE CLINICAL STUDY OF BLOOD PRESSURE. A Guide to the Use of the Sphygmomanometer in Medical, Surgical and Obstetrical Practice, with a Summary of the Experimental and Clinical Facts Relating to the Blood Pressure in Health and in Disease. By Theodore C. Janeway, M.D., Lecturer in Medical Diagnosis, University and Bellevue Hospital Medical College. Seventy-five Illustrations in the Text in Many Colors. Cloth. Pp. 300. Price, $3.00. New York and London: D. Appleton & Co. 1904.

Dr. Janeway's book on the clinical study of blood pressure is the first complete work on this subject. As the study of blood pressure outside the laboratory is rather new and the interest in it is rapidly increasing, this work is an important contribution to American medical literature. The book is divided into three parts: physiological, technical and clinical. In the first part the author discusses blood pressure in the normal man. He gives the general features of arterial circulation, the factors which determine blood pressure and the various elements influencing it. This chapter is especially valuable in showing how to recognize normal variations in blood pressure, a knowledge essential to the interpretation of blood pressure readings under pathologic conditions. In the chapter on technic, the author gives the development of the sphygmomanometer. He describes each of the modern instruments, giving the method of use, advantages, defects, maker and cost. Part three is devoted to the clinical side of the subject. The first chapter consists of a discussion of blood pressure in the normal man, followed by the blood pressure findings in diseases—medical, surgical and obstetric. Added clearness is given the subject by numerous cuts, diagrams, tracings and charts. The literature is carefuly reviewed and all of the scattered facts on this subject are collected in a manner most convenient for reference. This book can not but impress one with the value of blood pressure determinations. It will doubtless be an incentive to the physician to make more use of the sphygmomanometer at the same time, as it will aid him to employ it in an intelligent manner.

MANUAL OF MATERIA MEDICA AND PHARMACY. Specially Designed for the Use of Practitioners and Medical, Pharmaceutical, Dental and Veterinary Students. By E. Stanton Muir, Ph.G., V.M.D. Instructor in Comparative Materia Medica and Pharmacy in the University of Pennsylvania. Third Edition, Revised and Enlarged. Cloth. Pp. 192. Price, $2.00 net. Philadelphia: F. A. Davis Company.

This book is intended primarily for the use of students, and as such will serve a useful purpose, although it has too many shortcomings to make it useful for the general practitioner. The general considerations which precede the part on materia medica are so short and "general" that it would have been better to have omitted them entirely. In order to understand this portion of the book, it is necessary for the student to consult a larger work or to have a previous knowledge of the subject. The author speaks of materia medica as consisting of four distinct divisions—materia medica proper, pharmacy, pharmacology and therapuetics. No mention is made of pharmacognosy nor of pharmacodynamics. We believe that all these should be classed as subdivisions of pharmacology, the term materia medica being more or less obsolete as applied to the whole subject. The text of the book is brief and concise, such as one would expect to find in a quiz-compend, and not in a work which is intended to be used as a text-book. Part III, which comprises about one-third of the book, is devoted exclusively to pharmacy. The book is interleaved, a very commendable feature, and one which will be appreciated by the student. For purposes of review or for use in conjunction with a larger book, the book will be found satisfactory.

THE PURIN BODIES OF FOODSTUFFS and the Rôle of Uric Acid in Health and Disease. By I. Walker Hall, M.D., Assistant Lecturer and Demonstrator in Pathology, the Owens College. Second Edition. Revised. Cloth. Pp. 201-xiii. Price, $1.50 net. Philadelphia: P. Blakiston's Son & Co. 1904.

This work gives the results of a painstaking study of the exogenous and endogenous purin bodies. The material is presented in such a manner as to be directly useful to the physician, especially from the point of view of dietetics. Here are given tables showing the amount of purin bodies in many foodstuffs, so that it becomes possible to determine the amount of endogenous urinary purin in many diseases. To facilitate accurate work in this line, a purinometer is described. A chapter is devoted to the study of the effects of daily injections of purin bodies in rabbits whose growth was hindered thereby at the same time as changes occurred in the liver and kidney and in the cellular relations in the blood and marrow. The book may be recommended to all physicians who desire to know the plain facts, so far as they have been unearthed, in regard to the relation between uric acid and food.

BERI-BERI. Its Symptoms and Symptomatic Treatment. An Essay Printed by the Board of Trinity College, Dublin, for the Author. By Percy Netterville Gerrard, B.A., B.Ch., B.A.O., M.D., Dublin University. Cloth. Pp. 96. Price, $1.00. London: J. & A. Churchill. Philadelphia: P. Blakiston's Son & Co. 1904.

This little book contains nothing new concerning beri-beri, unless it be the statistical proof that other forms of treatment than the purely symptomatic are prejudicial. Those cases recover most rapidly that receive no other treatment than such as may be given for special symptoms. The arrangement of the matter in the book is peculiar. The great personal experience of the author should guarantee a reliable and complete clinical description of the disease.

## Miscellany.

**Serum Treatment of Whooping Cough.**—M. Manicatide of Jassy asserts that a bacillus which he isolated from 83 cases of whooping cough is the true causal germ. He calls it the Z bacillus, and states that it is agglutinated by serum from whooping-cough subjects. He announces further in the *Zeitschrift f. Hygiene*, XLV, No. 5, 1903, that serum treatment is proving effectual.

**Employ the Councilor.**—The *Journal of the Kansas Medical Society*, asks: "Is the feeling among the physicians in your town unsatisfactory? Is there underbidding? Slander? Do the newspapers print all sorts of fakir advertisements and despise their 'home doctors'?" It advises, in case such conditions prevail, that the councilor for the district be informed of the state of affairs and his aid asked.

**Paraplague Bacilli.**—R. O. Neumann has isolated from rats at Hamburg a bacillus which closely resembles the plague bacillus both in shape and behavior; the pathologic findings are also closely similar to those of true plague. He describes it in detail in the *Zeitschrift f. Hygiene*, XLV, No. 5, 1903. It differs from the plague bacillus in the vital points that it can be injected with impunity subcutaneously or into the peritoneum of rats, but the smallest scrap of infectious material aspirated into the lungs is fatal. Agglutination tests were negative. These bacteria are capable of causing much confusion in the diagnosis of the plague.

**The Parboiling Baths of the Japanese.**—The newspaper correspondents have had much to say of the way in which the Japanese take their daily baths—"at a certain hour every day the entire nation is parboiled." There are a number of hot springs which are great resorts. The *Gaz. Méd. de Paris* describes those of Kusatsu, where the mineral waters have a temperature of 123 F., but are cooled down to 119 F. in the tanks. At the approach of the bathing hour a trumpet call summons the bathers, and they flock to the tanks in groups of 15 or 20, each group under the supervision of a bathing master. Each bather wets his head before stepping into the water, and the bathing master starts a song, calling out the minutes from time to time, until he announces that time is up, when all hasten out of the hot water. At another resort the waters are still hotter and are utilized for steam baths. On emerging from the steam room the bathers run across the street and plunge into a tank of cold water. The daily hot bath is usually taken in water heated with a charcoal burner placed in the water. This, with the frequent drinking of tea and large amounts of

water, is assumed to be the reason why arthritism and gout are so rare in Japan. The Japanese are said to recognize a European or other foreigner by the odor alone. Their houses are not built for cold weather, and the small portable charcoal heaters used are not able to take the chill out of the rooms. But the people shiver and bear the cold with their characteristic equanimity, although outraged Nature often punishes them with respiratory affections. This helplessness in respect to cold is liable to prove an important factor in the campaign in Manchuria during the winter, as the climate is much severer than that of Japan.

**Indexing of Current Medical Literature.**—Professor Huchard of Paris writes to the editor of the now defunct *Bibliographia Medica* to the effect that an index exclusively of titles is of no earthly use, not even for research work, as no one is able to sift the valuable from the worthless by the titles of the articles alone. An expensive publication giving merely the titles will never succeed. "You can have confidence in my long experience as a medical journalist," he adds. "What is needed is a journal costing about $5 to $6 a year, which gives summaries of all the important articles and merely the titles of the others. *In hoc signo vinces.*" Prof. H. Huchard was the founder and editor of the *Revue Clinique et Thérapeutique* and of the *Journal des Practiciens*, both able French journals, and has recently been "medalled" by his friends, as mentioned on page 617. The occasion was the completion of his great work on the pathology of the heart, and his promotion in the Legion of Honor.

**Massage Cure for Obesity.**—Ziegelroth proclaims in the *Archiv f. physikalisch-diätetische Therapie*, vi, No. 1, 1904, (according to an abstract in the *Allg. Med. Ct.-Ztg.*), that obesity will vanish like snow in the March sunshine if treated by appropriate massage. He ascribes the painfulness in certain cases of adipositas to direct compression of the sensory nerves by the masses of fat, and also by the serous impregnation of the tissues. Every obese subject suffers from actual dropsy of the tissues. In all probability the lymphatics which should carry off the surplus serous fluids are mechanically occluded by the masses of fat. The passages become impermeable and the circulation is more or less completely arrested. Besides these factors the heart action is usually more or less compromised in abnormally fat persons. The best means of combating obesity, adipositas dolorosa and cardiac incompetency from this cause is energetic massage. The obesity subsides like magic under it, probably because the local dropsy is thus relieved. The best evidence of this is the increased secretion of urine. The massage has also direct action on the masses of fat which are generally more or less empty of blood. Energetic massage induces a copious supply of blood through them. The pallid, cool masses of fat become warm and pink under the massage, local metabolism is promoted and the fat disintegrates and is absorbed. Large folds of fat on the abdomen should be taken up and squeezed, crushed, kneaded and pounded, but all without injury to the organs beneath. The best way is to take up a large fold and pound it horizontally with the other hand, remembering always that the organs below must not be disturbed. Less caution is required in massaging the thighs, hips, etc. In massaging the face the cosmetic results must be borne in mind and the lost tonus of the subderma be stimulated to avoid formation of wrinkles. Daily stroking massage is preferable here and the autovibrator may be found useful, but for double chin and similar accumulations of fat energetic squeezing and kneading is more rapidly effectual.

**Habit Pains.**—Physicians are sometimes consulted by patients on account of a pain which recurs at a given day and hour, or at variable intervals but for some given trivial inciting cause. In both cases the pain seems to have become a habit. The pain recurs as a habit at a certain hour or in connection with a certain act or sight. Brissaud presented a communication on the subject at a recent medical congress, relating seven cases from his own experience to show the peculiarities of these *douleurs d'habitude*, as he calls them. His article is reproduced in the *Progrès Méd.*, xix, No. 2. He believes that the subjects are victims of an actual obsession, a hallucination of pain when in reality there is no pain. As it is a subjective phenomenon, physicians are apt to accuse the subjects of a habit of complaining rather than a habit of actual pain. As these habit pains may be the only symptoms of ignored hysteria or neurasthenia, the differential diagnosis of these two conditions is frequently difficult. When material phenomena, vomiting, vertigo, spasms or visceral congestion demonstrate the actuality of the attack the physician must not be misled into treating the supposed organic origin. The narcotics alone are effectual unless the evil is of long standing. If it is, then psychotherapy is the only resource, for these habit pains are a manifestation of mental pathology. In 3 of his cases the nightly periodicity of the pain was a striking feature, suggesting what he has previously described as "nocturnal paroxysmal anguish"; the anguish sensation usually accompanied the habit pains. One patient was cured by opium, another by an emotion, interrupting the rhythm of the habit. In one case the pain recurred at 2 a. m. every night, always in the left leg from the calf to the toes, and lasted an hour, without any cramp contracture. In other cases the pain was in the trunk, head or neck. In one instance writer's cramp recurred whenever the subject tried to write, and always with the anguish sensation which distinguishes these habit pains.

**Medical Missionary Work in China.**—The prospectus has been received of the medical college recently opened in Canton, South China, under the auspices of the Medical Missionary Society (undenominational) in connection with the hospital at that place. The Chinese language is the medium of instruction used, and before entering the college students must present evidence of a good Chinese education and must be physically sound. The course consists of didactic and clinical lectures, graded for a period of four years. Each student, during the course, must spend periods of time, aggregating not less than one year in active hospital work. Dr. John M. Swan, surgeon in charge, has sent the last yearly report of the Canton Hospital, which shows it to be well equipped for the performance of successful surgical work, including *x*-ray and other electrical appliances. During the year 1,374 operations were performed on men and 1,127 on women. The operations on women included the following obstetric procedures: Craniotomies, 20; forceps deliveries, 57; operations for retained placenta, 19; transverse presentations (version and forceps), 28; perineorrhaphies, 20. Seven ovarian cysts were removed and amputation of the breast, with removal of the axillary glands for carcinoma, was done 21 times. One man was operated on for appendicitis. Seventy eye operations of various kinds were performed on men and 252 on women. There were 72 deaths during the year, 55 men and 17 women. The society announces that two additional foreign physicians are urgently needed for the work of the college and hospital combined. Apparatus, furniture and appliances, costing approximately $5,000 are needed at once. Scholarships, costing $300, are necessary for worthy students, who can take the course only in this way. An additional building, to be used largely for dormitories and costing about $15,000, is also needed.

## CLIPPINGS FROM LAY EXCHANGES.

### GLYCOHEMIA.

In an advertisement of a much-exploited patent medicine, the following testimonial appears:

"It is with pleasure that I write this testimonial in behalf of my daughter, Lillian, who was very sick. Our doctors said her blood had turned to sugar at the critical time of womanhood. She could not walk or stand, but had to lie in bed almost all day for five long months. Our doctor did all he could for her, but she got worse all along. I was anxious about her; in fact, all our family were almost crazy to think she would die so young.

"I had heard and read so much of Dr. ——'s blood and nerve remedy that I went and got a bottle. On the second day I saw an improvement in her condition. I was overjoyed and kept on and got another bottle, and when the second bottle was used she apparently came back to life."

REMOVED INSIDE OF EYEBALL—WHAT AN ABSCESS MAY CAUSE.

"Drs. —— and —— removed the inside of the ball of the left eye of the little . . . son of Billy —— and wife the same being caused by an abcess forming on the eye."—*Anderson* (Ind.) *Herald*, April 21, 1904.

WHAT MILLIONAIRES CAN HAVE—DIA-PED-ES.

"——, . . . worth several millions of dollars, . . . came here . . . to recover from an attack of diabetes in the right foot."—*Atlantic Review*, Atlantic City, N. J., June 10, 1904.

FOR FURTHER PARTICULARS CONSULT HANDBILLS.

"NOTICE.—Dr. — — ——, Dentist, —— building, —— and —— streets, has returned from the bedside of his mother, who was ill, and is again ready to attend to the wants of his patrons."—*Johnstown Democrat*, advertising columns.

READERS MAY TAKE THEIR CHOICE.

"At an early hour this morning —— was resting fairly well, but was very restless."—*Johnstown Democrat*, Aug. 20, 1903.

CARRY A PAILFUL WITH YOU.

"——, ——, medical superintendent of the —— School of Psychology, . . . proceeds to say: ' . . . in the treatment of acute or chronic appendicitis, it is best to take [water] . . . in small quantities, but [it] . . . should be taken frequently—say a good mouthful every five or ten minutes during the day.' "—*Seattle* (Wash.) *Times*, July 31, 1904.

TOO MANY (PTOMAINE) JOLTS FOR THE MILK.

"MILK POISONED BY JOLT.—Dr. ——, ——, secretary of the —— —— State Board of Health, has completed his investigation into the cause of the ptomaine poisoning of . . . thirty . . . persons. . . . Dr. —— is . . . convinced that the jolting of the milk over the road before it had been cooled produced a chemical action which introduced the poisonous properties into the milk."—*Doylestown* (Pa.) *Republican*, Aug. 4, 1904.

WHICH AIR CELL?

"——, ——, . . . suffered two broken ribs and punctured an air cell of one of his lungs in a collision. . . . The doctor said the rupture of the air-cell is likely to induce pneumonia."—*Stamford* (Conn.) *Advocate*, July 28, 1904.

APPENDICITIS IN THE BOWELS OF A SHIP.

"Ship's Surgeon ——, . . . diagnosed the case as appendicitis. . . . With none of the modern appliances of a surgical operating room, on board an ocean liner, deep in the bowels of the ship . . . these three skilled and daring surgeons set about to relieve the sufferings of a poor workingman. . . . Without doubt the past annals of surgery can not show a more unique and daring operation."—*Burlington* (Vt.) *Free Press*, Aug. 17, 1904.

# The Public Service.

## Army Changes.

Memorandum of changes of stations and duties of medical officers, U. S. Army, for the week ending Oct. 15, 1904:

De Witt, W., asst.-surgeon, leave of absence extended fourteen days.

Field, Peter C., asst.-surgeon, leave of absence extended fifteen days.

Wakeman, W. J., surgeon, granted leave of absence for ten days.

Wilson, J. S., asst.-surgeon, ordered to accompany Fifteenth Cavalry from Fort Myer, Va., to Fort Ethan Allen, Vt.

Hoff, John Van R., deputy surgeon general, left post Fort Leavenworth, Kan., on seven days' leave of absence.

Craig, C. F., asst.-surgeon, having reported to the military secretary is ordered to return to his proper station, Presidio of San Francisco.

Duval, D. F., asst.-surgeon, granted leave of absence for fifteen days.

Waddell, Ralph W., contract dental surgeon, granted leave of absence for three months from Fort Leavenworth, Kan.

Van Kirk, Harry H., contract surgeon, granted leave of absence for one month from Fort Sill, Okla.

Wythe, Stephen, contract surgeon, left the transport *Buford* October 10 on leave of absence for two months.

Jenkins, Frederick E., contract surgeon, granted leave of absence from Fort Barrancas, Fla., for two months.

Brown, Henry D., contract surgeon, granted leave of absence for two months from Fort Ward, Wash.

Boak, S. Davis, contract dental surgeon, ordered from Fort Hancock, N. J., to Fort Slocum, New York, for two months' duty.

## Navy Changes.

Changes in the medical corps, U. S. Navy, for the week ending Oct. 15, 1904:

Cole, H. W., Jr., asst.-surgeon, appointed asst.-surgeon, with rank of lieutenant, junior grade, from Oct. 5, 1904.

Cowan, J., pharmacist, retired, ordered to the Naval Hospital Port Royal, S. C., for duty.

Smith, H. W., and Clifford, A. B., asst.-surgeons, ordered to the Naval Museum of Hygiene and Medical School, Washington, D. C.

## Public Health and Marine-Hospital Service.

List of changes of station and duties of commissioned and non-commissioned officers of the Public Health and Marine-Hospital Service for the seven days ending Oct. 12, 1904:

Stoner, G. W., surgeon, leave of absence for eight days from Sept. 19, 1904, under Paragraph 189 of the Regulations, amended to read seven days only.

Wertenbaker, C. P., surgeon, granted leave of absence for one month from date of joining station at Ellis Island, New York.

Rosenau, M. J., P. A. surgeon, detailed to represent Service at meeting of the Committee on Antitoxin and Immunizing Sera of the Laboratory Section of the American Public Health Association at New York, October 7 and 8.

Sprague, E. K., P. A. surgeon, granted leave of absence for seven days from Oct. 11, 1904, under Paragraph 191 of the Regulations.

Foster, M. H., P. A. surgeon, relieved from duty at Port Townsend, Wash., and directed to proceed to San Diego, Cal., and assume command of the Service at that port, relieving temporary A. A. Surgeon B. V. Franklin.

Robinson, D. E., P. A. surgeon, relieved from duty at Port Townsend Quarantine, Washington, and directed to proceed to Port Townsend and assume command of the service at that port, relieving P. A. Surgeon M. H. Foster.

McClintic, T. B., P. A. surgeon, on being relieved at Tampico, Mexico, by P. A. Surgeon Joseph Goldberger, to proceed to Washington, D. C., and report at the Bureau for further orders.

Goldberger, Joseph, P. A. surgeon, relieved from duty at Monterey, Mexico, and directed to proceed to Tampico, Mexico, for duty, relieving P. A. Surgeon, T. B. McClintic.

Amesse, J. W., asst.-surgeon, to proceed to San Francisco and report, on Oct. 31, 1904, to the chairman of board convened to determine the fitness of Asst.-Surgeon Amesse for promotion to the grade of P. A. surgeon.

Collins, G. L., asst.-surgeon, leave of absence for three days from Sept. 30, 1904, granted under Paragraph 191 of the Regulations, amended to read one day only.

Frick, John, A. A. surgeon, relieved from duty at Brownsville, Texas, and directed to proceed to Laredo, Texas, and report to the medical officer in command for duty.

Jackson, J. M., Jr., A. A. surgeon, granted leave of absence for 30 days from October 26.

LaGrange, J. V., pharmacist, granted extension of leave of absence for sixteen days from October 3.

APPOINTMENT.

John M. Bell, of Minnesota, appointed pharmacist of the third class.

BOARDS CONVENED.

Board convened to meet at the Purveying Depot, New York, Oct. 31, 1904, for the examination of such assistant surgeons as may present themselves to determine their fitness for promotion to the grade of P. A. surgeon. Detail for the board: Surgeon H. W. Bawtelle, chairman; Surgeon G. W. Stoner, P. A. Surgeon C. H. Lavinder, Recorder.

Board convened to meet at the Plague Laboratory, San Francisco, Cal., Oct. 31, 1904, for the examination of Asst.-Surgeon J. W. Amesse to determine his fitness for promotion to the grade of P. A. surgeon. Detail for the board: P. A. Surgeon Rupert Blue, chairman; P. A. Surgeon H. S. Cumming; P. A. Surgeon D. H. Currie, recorder.

## Health Report.

The following cases of smallpox, yellow fever, cholera and plague have been reported to the Surgeon General, Public Health and Marine-Hospital Service, during the week ending Oct. 15, 1904:

SMALLPOX—UNITED STATES.

Arkansas: Fort Smith, Aug. 20-27, 3 cases.
Illinois: Chicago, Oct. 1-8, 3 cases.
Indiana: Evansville, Oct. 10, 20 cases.
Massachusetts: North Adams, Oct. 1-8, 1 case.
Michigan: At 89 places, Sept. 24-Oct. 1, present.
Minnesota: Sept. 27-Oct. 3, Hennepin County, 23 cases; Washington County, 1 case.
Missouri: St. Louis, Sept. 24-Oct. 10, 20 cases, 1 death.
New York: Oct. 1-8, Buffalo, 1 case; New York City, 1 death.
Ohio: Cincinnati, Sept. 30-Oct. 7, 1 case; Toledo, Oct. 1-8, 1 case.
Tennessee: Nashville, Oct. 1-8, 3 cases.
Texas: San Antonio, Sept. 1-30, 1 case.
Wisconsin: Milwaukee, Oct. 1-8, 1 case.

SMALLPOX—INSULAR.

Philippine Islands: Manila, Aug. 13-20, 1 case, 2 deaths.

SMALLPOX—FOREIGN.

Africa: Cape Town, Aug. 20-27, 1 case.
Belgium: Brussels, Sept. 17-24, 1 death.
France: Paris, Sept. 17-24, 10 cases, 2 deaths.
Great Britain: Sept. 17-24, Bristol, 1 case; Manchester, 2 cases; Newcastle-on-Tyne, 7 cases; Nottingham, 4 cases; Glasgow, Sept. 23-30, 1 case; Leeds, Sept. 10-17, 5 cases.
India: Bombay, Sept. 6-13, 1 death; Karachi, Sept. 4-11, 1 death.

Italy: Catania, Sept. 23-29. 1 death; Palermo, Sept. 17-24, 9 cases, 2 deaths.
Mexico: City of Mexico, Sept. 17-24, 2 cases.
Russia: Sept. 10-17, Moscow, 6 cases, 1 death; St. Petersburg, 9 cases, 1 death; Warsaw, Sept. 13-20, 20 deaths.
Turkey: Sept. 17-24, Alexandretta, present; Beirut, present; Constantinople, Sept. 18-24, 19 deaths.

YELLOW FEVER.

Mexico: Coatzacoalcos, Sept. 17-24, 15 cases, 4 deaths; Sept. 25-Oct. 10, Merida, 1 case; Tehuantepec, 1 case, 1 death.

CHOLERA.

India: Bombay, Sept. 6-13, 4 deaths; Calcutta, Aug. 26-Sept. 10, 10 deaths.
Russia: Transcaspian territory and Central Asia, Askabad, Aug. 19, 1 case, 1 death; Bairam Ali, Aug. 14-17, 8 cases, 4 deaths; Kushka, Aug. 12-19, 12 cases, 5 deaths; Merv, Aug. 18-19, 29 cases, 16 deaths; New Bokhara, Aug. 16, 1 case, 1 death; Tejend, Aug. 12, 1 case, 1 death; Trans Caucasia, Baku, Sept. 11, 5 cases.

PLAGUE—INSULAR.

Philippine Islands: Manila, Aug. 13-20, 1 case, 1 death.

PLAGUE—FOREIGN.

Egypt: Sept. 3-9, Alexandria, 9 cases, 8 deaths; Tukh, 6 cases, 4 deaths.
India: Bombay, Sept. 6-13, 62 deaths; Calcutta, Aug. 26-Sept. 3, 7 deaths; Karachi, Sept. 4-11, 6 cases, 2 deaths.
Japan: Formosa, Aug. 20-27, 7 cases, 9 deaths.

## State Boards of Registration.

### COMING EXAMINATIONS.

Board of Medical Examiners of the State of California, San Francisco, October 25. Secretary, Charles L. Tisdale, M.D., Alameda.
Nebraska State Board of Health, November 9-10, State House, Lincoln. Secretary, George H. Brash, M.D., Beatrice.

**Illinois July Report.**—Dr. J. A. Egan, secretary of the State Board of Health of Illinois, reports the written examination held at Chicago, July 20-22, 1904. The number of subjects examined in was 11; total number of questions, 110; percentage required to pass, 75. The total number examined was 168, of whom 159 passed and 9 failed. The following colleges were represented:

| College | Year Grad. | Per Cent. |
|---|---|---|
| PASSED. | | |
| Baltimore Medical College | (1894) 85, (1904) | 80 |
| College of P. and S., Baltimore | (1904) | 87 |
| College of P. and S., Chicago, (1904) the grade of 77 was reached by one, 80 by one, 82 by one, 83 by three, 84 by three, 85 by three, 86 by two, 87 by four, 89 by one, 91 by two. | | |
| Coll. of P. and S., Columbia University, New York | (1904) | 83 |
| College of P. and S., St. Louis | (1901) | 82 |
| Columbia University, Washington, D. C. | (1903) | 86 |
| Dearborn Medical College, Chicago, (1904) the grade of 76 was reached by two, 80 by one, 81 by one, 82 by three, 83 by two, 84 by two, 85 by two, 88 by one. | | |
| Hahnemann Med. Coll. and Hosp., Chicago, (1904) 88, 88, 88, 86 | | |
| Harvey Medical College, Chicago, (1904) the grade of 80 was reached by one, 81 by two, 82 by one, 84 by four, 85 by four, 86 by one, 87 by one, 89 by one. | | |
| Illinois Medical College, Chicago | (1904) 83, 82, 77, 83 | |
| Jefferson Med. Coll., Philadelphia | (1885) | 80 |
| Jenner Med. Coll., Chicago | (1904) 79, 81, 80, 82, 77, 85 | |
| Johns Hopkins Med. School, Baltimore | (1904) | 88, 87 |
| Kentucky Univ. Med. Dept., Louisville | (1904) | 81, 82 |
| Louisville Medical College | (1904) | 84 |
| Marion-Sims-Beaumont, St. Louis | (1897) 81, (1904) | 82, 84 |
| McGill University, Montreal | (1904) | 92 |
| Med. Coll. of Indiana, Indianapolis | (1904) | 80 |
| Med. School, Harvard Univ., Boston | (1904) | 86 |
| National Med. Univ., Chicago, (1904) the grade of 79 was reached by one, 80 by two, 81 by one, 82 by one, 86 by one, 87 by two. | | |
| National Univ., Athens, Greece | (1900) 81, (1902) | 80 |
| Northwestern Univ. Med. School, Chicago, (1903) 86, (1904) the grade of 80 was reached by one, 82 by one, 83 by one, 85 by one, 86 by three, 87 by four, 88 by four, 89 by seven, 90 by one, 92 by one. | | |
| Royal Univ., Vienna, Austria | (1898) | 85 |
| Rush Medical College, Chicago, (1902) 80, (1903) 87, 91, 83, 81, 90; (1904) the grade of 83 was reached by one, 84 by two, 85 by one, 86 by five, 87 by two, 88 by seven, 89 by five, 90 by four, 91 by two. | | |
| Trinity Medical College, Ontario | (1894) | 87 |
| Univ. of Michigan, Ann Arbor | (1903) 91, (1904) | 86 |
| Univ. of Parma, Italy | (1903) | 79 |
| Univ. of Pennsylvania, Philadelphia | (1903) 91, (1904) | 82 |
| Wisconsin College P. and S., Milwaukee | (1904) | 86 |
| FAILED. | | |
| Chicago Homeo. Med. College, Chicago | (1903) | 74 |
| College of Med. and Surg., Chicago | (1904) | 40, 72 |
| Harvey Medical College, Chicago | (1904) | 64 |
| Louisville Medical College | (1891) | 73 |
| Miami Med. Coll., Cincinnati | (1904) | 63 |
| National Medical Univ., Chicago | (1904) | 66, 69, 72 |

The general average for all representatives of the College of Physicians and Surgeons, Chicago, who passed was 85; of Dearborn Medical College, 82.2; of Harvey, 84.1; of Jenner, 80.7; of National Medical University, 82.7; of Northwestern University, 86.7; of Rush, 86.2.

## Society Proceedings.

### COMING MEETINGS.

AMERICAN MEDICAL ASSOCIATION, Portland, Ore., July 11-14, 1905.

Hawaiian Territorial Medical Society, Honolulu, November 5.
Oklahoma State Medical Association, Oklahoma City, November 9.

### ASSOCIATION OF MILITARY SURGEONS OF THE UNITED STATES.

*Thirtieth Annual Meeting, held in the Hall of Congresses, St. Louis, Oct. 10-15, 1904.*

Addresses of welcome were delivered by Governor Alexander M. Dockery, on behalf of the State of Missouri; by President David R. Francis, on behalf of the Louisiana Purchase Exposition, and by certain of the foreign delegates, after which Medical Director John Cropper Wise, U. S. Navy, delivered the presidential address, entitled "The Ideal Military Surgeon."

**Organization of the Army Medical Department.**

An abstract was submitted of the essay to which was awarded the Enno Sander prize, on "The Relation of the Medical Department to the Health of Armies." The plan contemplates the organization of the Army Medical Department on a new basis, recognizing the fact that medical officers, like other men, differ much in their capacity for performing properly the manifold duties which devolve on them, and that in their assignments their special abilities and experience should be taken into consideration. Few are or can become skilled operators, and few are or can become skilled sanitarians; hence the importance of putting these specially skilled men where they are most needed.

**The Army Medical Reserve.**

MAJOR AZEL AMES, U. S. V., reviewed the composition of the medical staff of the United States Army since 1846, in which the contingent fresh from civil practice has always necessarily been large and disproportionate. The acting assistant surgeon is a chief factor of this contingent, always of anomalous status; his very existence has been made impossible by the decisions of the Judge Advocate General and of the Secretary of War. As it is essential to supply his place with a commissioned competently trained officer, an adequate corps should be drawn from physicians in civil life. This corps should be made an adjunct of the Army, available on call, maintained at the minimum of expense and the maximum of efficiency, easily mobilized and always under training. To establish the means and standing of their instruction, Major Ames recommends the establishment of an army medical school, the adjunct and reserve medical corps being instructed and examined by the school, by means of the correspondence method now so successful in scientific educational institutions. Thus the unsatisfactory and anomalous position of the contract surgeon body would be taken by a homogeneous commissioned corps of competent medical men in civil practice, ready to take the field on call or to serve as needed in time of peace, viz., the Medical Reserve Corps of the United States Army.

**The Russian-Japanese War.**

MAJOR LOUIS L. SEAMAN, U. S. V., who has recently returned from the seat of war in Manchuria, declared that the United States is very far behind the Japanese in matters of military medical organization and sanitation. The Japanese are the first to recognize the true value of the army medical corps. As he saw the organization in operation, the care of the sick and wounded consumed but a small share of their time. The solution of the greater problem of preventing disease by the careful supervision of the smallest details of subsistence, clothing and shelter is their first and most important duty. Nothing is too small to escape their vigilance, nor too tedious to weary their patience, and everywhere, in the field with the scouts or in the base hospitals at home, the one great, prevailing idea is the prevention of disease. The medical offi-

cer will be found both in the front and in the rear. He is with the first screen of scouts, with his microscopes and chemicals, testing and labeling wells, so that the army which follows shall drink no contaminated water. When scouts reach a town, he immediately institutes a thorough examination of its sanitary condition, and if contagion or infection be found, he quarantines and places a guard around it. A medical officer accompanies foraging parties, and with the commissariat officers, samples the various food, fruit and vegetables sold by the natives before the arrival of the army. If the food be tainted, or the fruit overripe or the water require boiling, notice is posted to that effect. As a result of all this, the medical officer is not obliged to treat cases of dysentery and fevers that follow improper subsistence and neglected sanitation—diseases that have brought more campaigns to disastrous terminations than the strategy of opposing generals or the bullets of their followers. He stated that up to August 1, 9,802 patients had been received at the hospital at Hiroshima, of whom 6,636 were wounded, and that of the entire number only 34 had died.

Major Seaman also spoke of the contrast which he found on visiting the Russian lines, and told of the brutality, debauchery, apathy and criminal carelessness of the Russian officers.

*(To be continued.)*

## CLEVELAND ACADEMY OF MEDICINE.

*Eighteenth Regular Meeting of the Clinical and Pathological Section, held Oct. 7, 1904.*

Dr. C. A. Hamann in the Chair.

Drs. W. T. Corlett and F. E. Bunts presented cases and Dr. J. J. Thomas showed a heart from a five-week-old child, in which the interventricular septum was incomplete, and the foramen ovale patent. The child showed slight cyanosis only at the conclusion of spasmodic attacks of dyspnea.

### Albuminuria in Appendicitis and Hernia.

DR. F. E. BUNTS reported 50 cases of appendicitis and 50 cases of hernia with reference to albuminuria. He contrasted the 50 cases of appendicitis as representing an intraperitoneal inflammatory condition, with the 50 cases of hernia, representing a non-inflammatory condition. The number of cases, though small, showed that in the inflammatory cases primary albuminuria was more frequent than in the non-inflammatory cases and that improvement or disappearance of albuminuria followed operation in 10 per cent. of the former and in but 4 per cent. of the latter. The statistics, being of but 100 cases, are meager, but suffice to emphasize observations made by Dr. John C. Munro that albuminuria is found in a large percentage of surgical cases, that it can not be considered on any ground yet established, that it is of itself a contraindication to operation; of the 100 patients reported, only two, both with acute suppurative appendicitis, having died.

### Occlusion of the Bowel with Absorbent Cotton.

DR. G. S. SMITH reported a case of pyrexia and reversed intestinal peristalsis, from mechanical irritation and temporary occlusion of the bowel, due to the presence of a large amount of absorbent cotton in the alimentary canal of a child aged 2½ years. For twelve hours after the cotton had been swallowed no symptoms appeared. Then suddenly signs of extreme prostration and drowsiness developed, with a temperature of 102. Tympanites was moderately pronounced over the epigastrium. In other respects physical examination was negative. The temperature steadily rose for twenty-one hours, finally reaching 105. At this time a large volume of bilious vomitus was thrown off, with no marked improvement. Later the colon was flushed and the cotton and a small amount of fecal matter removed. The symptoms of prostration and anorexia persisted for twenty-two hours longer, the temperature returning to normal by lysis. The recovery was finally as rapid as the onset had been nearly forty-eight hours previously.

## MEDICAL SOCIETY OF THE STATE OF PENNSYLVANIA.

*Fifty-fourth Annual Meeting, held at Pittsburg, Sept. 26 to 29, 1904.*

*(Continued from page 1163.)*

### Tympanites.

DR. J. C. O'DAY, Oil City, cited his unfortunate experience in his first case of obstinate tympanites in which operation was not done. While believing that needle puncture is unsurgical, he is convinced from an experience of two cases that the operation should be encouraged, because its dangers are nil, and many untrained in the use of the knife could resort to this simple procedure with successful result.

### Autointoxication.

DR. EDWIN W. MOORE, Franklin, said that the real cause of autointoxication is an unsolved mystery, and claimed that perverted nutrition and cell destruction afford sufficient cause to justify it a place as a causative factor in disease. He separated autointoxication from infection by giving to the infection theorists all conditions of exogenous origin, and to the autointoxication investigators those of endogenous origin. He admitted a large field of toxemias between these extremes as unclassified and of no known definite origin. He differentiated rheumatism, gout, many nervous diseases, jaundice from obstruction, Addison's disease and many gastroenteric conditions as autointoxications, and questions the right of investigators, in claiming anemia as an infection.

### Symptomatology and Treatment of Influenza.

DR. SAMUEL WOLFE, Philadelphia, said that the history of influenza showed characteristic deviations from the clinical type, but that the affinity of the specific cause for mucous membranes and nervous structures is constantly demonstrated. There is reason to believe that certain symptoms are caused by the bacillus itself, and certain others by the toxin resulting from it, but strict differentiation is not yet practicable. The treatment aims at the control and mitigation of such conditions as fever, pain, catarrhal inflammations and central nervous derangements. Facilitating the elimination of the toxin must be regarded as important.

### Pleurisy with Effusion.

DR. J. E. RIGG, Wilkinsburg, considered the frequency of pleurisy found at autopsies, the forms of pleurisy, tuberculosis as a predisposing cause, and cold, traumatism and infection as exciting causes. The value of blisters in the early stage was discussed, the optional use of the aspirator, with the positive signs for its prompt use. He also mentioned the value of tincture of aconite combined with belladonna.

### Pneumonia.

DR. JOHN R. MCCARTEY, Fredonia, is at variance with those advocating the expectant treatment in pneumonia. From 32 years' experience, he considers spirit of chloroform a specific, when given early. Two cases were cited. The first, seen as soon as the patient emerged from a severe chill, received 20 minims every fifteen minutes for six doses, and every hour thereafter, and dismissed the next day. Case 2 was seen eight hours after the initial chill, and dismissed on the third day. The remedy is of no avail after hepatization is established. He uses aconite in combination. Salicylic acid alone will cure and abort pneumonia by its antiseptic action. He gives it by absorption by dissolving it in gasolin and applying it externally. His mortality has been but 2 per cent.

### Blood Analysis.

DR. J. M. MCNALL referred to the advantages of blood analysis, with its limitations and requirements. He defined leucocytosis, and gave its varieties, absolute and relative, and emphasized the importance of relative count and leucocyte curve.

### Sea Bathing.

DR. PHILIP MARVEL, Atlantic City, spoke of the great an-

tiquity of sea bathing as a curative of bodily ills. The influence of temperature, conditions of the atmosphere, the physical and mental condition of the individual, and the fact that the water is truly a mineral water, were facts not to be lost sight of. Observations were noted of the slowing or enfeeblement of the pulse of those submerged for hours in the sea and of those immersed for a time in water at a temperature higher than that of the body, with a lowering in the systemic resistance. He believes that sea bathing as practiced on the Atlantic coast is responsible for greater harm than good, and believes that physicians have been too long silent on the subject. They should impress on those under their care the advantages of a short exposure, not exceeding 30 minutes, and the necessity for prompt and positive reaction. Sea bathing is indicated in those weakened conditions where normal metabolism is inhibited or perverted nutrition exists, and is contraindicated where the arterial elasticity has been changed or lost, as in arteriosclerosis and capillary fibrosis; also in those cases in which the peripheral vessels have ceased to respond to reflex stimuli; in any condition in which the stimulation would favor internal hemorrhage; in cases of chronic heart disease, and in cases in which lowered resistance necessitates more than ordinary care of the patient's forces.

DISCUSSION.

Dr. S. S. Cohen, Philadelphia, believed that sea bathing was abused, and that the responsibility for changing this lay with the physician.

### Ulnar Palpation and Transmanual Auscultation.

Dr. David Riesman, Philadelphia, designated as ulnar palpation a method which he believes gives more satisfactory results than the one commonly employed. Dr. Riesman's method consists in applying the ulnar surface of the hand and little finger into each interspace, the hand being held perpendicularly to the chest. In the old method an area much larger than the seat of disease is often covered, and the fremitus of the diseased area is modified by that of the surrounding normal tissue. The method gives very accurate information and enables one to discover small shades of difference in the fremitus of contiguous interspaces or corresponding areas of the two sides. It also shows accurately the upper level of an effusion and the limits of a plastic exudate. It is of most value in examining the front of the chest, but may be also used for the back. After speaking of the difficulties of the method of timing heart murmurs, and of the unsatisfactory results generally given by timing murmurs by means of the carotid pulse, Dr. Riesman described a method which overcame some of the difficulties. It consists in auscultating with the binaural stethoscope through the hand placed over the apex beat. By this method the apex beat is felt and the murmur heard at the same point, and timing becomes easy. The best stethoscope for the purpose is one provided with a diaphragm. Not only is it possible to hear murmurs plainly through the hand, but almost as satisfactory results can be obtained by placing a finger flexed at a right angle on the apex beat, and then resting the stethoscope on the finger. The principal advantage of transmanual auscultation is found in the differentiation of presystolic from systolic murmurs. It is also of use in timing musical and other peculiar murmurs that are heard over the entire precordia, or perhaps the entire chest. The successful application of the method presupposes the existence of a palpable heart.

DISCUSSION.

Dr. S. Solis-Cohen thought this method of transmanual auscultation one of the greatest advances made in physical diagnosis and urged it on the attention of the members.

### Myocardial Degeneration.

Dr. Albert E. Roussel, Philadelphia, stated that if the statistics of Schott were accepted, it would be found that diseases of the myocardium were more frequent than those of the endocardium in the proportion of 505 to 245. He believed that arteriosclerosis must be accepted as an important factor in many cases of cardiac degeneration, and considered it worthy of note that at least partial occlusion of the coronary arteries due to this cause may be compensated through the vessels of Thebesius with avoidance of the otherwise resulting damage. Parenchymatous degeneration, fatty heart and allied conditions were considered, with their etiology and treatment. The diagnosis of many cases of fatty degeneration he believes more difficult than that of a fibroid heart and is confident that often cases of this disease are not recognized even after a physical examination. This is because the size of the heart in simple fatty degeneration is little changed, and the area of dullness presents no alteration.

### Practical Points Concerning Smallpox.

Dr. William M. Davis, Pittsburg, emphasized the importance of taking into consideration the entire symptom complex. Contrary to some opinions, he believes the primary fever to be very contagious. The varieties of smallpox in reference to diagnosis and prognosis were discussed.

### The Test for Occult Blood in the Feces, and Its Clinical Significance.

Dr. J. Dutton Steele, Philadelphia, said that by occult is meant an amount of blood so small that it can not be recognized by the naked eye or by the microscope. It has been found by certain German observers that the old guaiac test for hemoglobin can be so modified as to detect externally small amounts of blood in the feces. This is of special value in the diagnosis of gastric carcinoma and gastric and duodenal ulcers. The blood is constantly present in the stools of carcinoma and is intermittently present in cases of gastric and duodenal ulcer, and organic but benign stricture of the pylorus. Dr. Steele reported seven cases in which the test had been applied and in which it appeared to be as valuable as is claimed. He is of the opinion that the method is a distinct advance in the diagnosis of gastrointestinal diseases and will soon rank with such symptoms as the absence of hydrochloric acid in cancer or hyperacidity in ulcer.

DISCUSSION.

Dr. J. A. Lichty, Pittsburg, said that his knowledge of the subject lay in what he had read in Boas' publications, but that he would employ the test, which he believed would be of special value in revealing the cause of many cases of so-called primary anemias.

### Tuberculosis of the Gastrointestinal Tract.

Dr. J. A. Lichty, Pittsburg, reported a case having perforation and partial stenosis of the bowels. The modes of infection of the gastrointestinal tract were given as primary: *a*, by inspiration; *b*, by kissing; *c*, by dirty objects or contaminated hands which find access to the mouth; *d*, food from infected animals, or food which accidentally became infected; or secondary, that is, from the swallowing of sputum which is tuberculous.

### The Diagnosis of Cirrhosis of the Liver.

Dr. Alfred Stengel, Philadelphia, stated that cirrhosis of the liver is usually recognized when the disease has reached a practically incurable stage. This statement, however, Dr. Stengel said, needs some modification, for occasionally cases not recognized until ascites and other signs of portal obstruction have developed recover from these striking symptoms and survive, which is probably due to the fact that with the terminal cirrhotic change in the liver there is always a considerable amount of cellular infiltration which is removable. He referred to a certain train of symptoms met in the earlier stages of cases of cirrhosis as well as in other conditions, and then proceeded to a discussion of the differential diagnosis. With regard to the occurrence of enlargement in the early stage of cirrhosis, he stated that, contrary to the opinion of Loube, he had watched cases of cirrhosis from a stage when the liver was enlarged to the terminal contracted condition. The symptoms in congestion are practically those that usually are seen, but there is always found some adequate circulatory cause for the congestion, some form of cardiac or obstructive pulmonary disease which prevents the proper circulation of

the blood; the congestion is found to fluctuate with the fluctuations in the underlying condition. Dr. Stengel referred to the chemistry of cirrhosis and stated that the only test that had proved of any value, and this merely confirmative, is that for urobilin. Among the conditions causing the train of symptoms met with, cirrhosis is the only one which regularly produces urobilinuria. Finally, in referring to the physical examination for cirrhosis in its more advanced stages, he warned against a too ready acceptance of the results of percussion as an indication of decrease in the size of the spleen, and advocated a more general appreciation of the value of splenic enlargement in the diagnosis of cirrhosis of the liver.

DISCUSSION.

Dr. David L. Edsall, Philadelphia, referred to alimentary levulosuria as one of the chemical methods used in the diagnosis of liver disease. Strauss administered 100 grams of levulose on an empy stomach and determined that levulose appeared in the urine in a large proportion of cases of liver disease, but in only a small proportion of cases of disease of other kinds. Dr. Edsall, from his own results and those of others, is skeptical as to the diagnostic value of this test. He emphasized the ease with which the test for urobilinuria may be carried out when the method of Hammerschlag is used. The determination of large amounts of phenol in the urine is a test which he is inclined to regard favorably. He thought it would be worth while to determine to what extent the products of putrefaction escape into the general circulation and then into the urine in liver disease, as a loss of the liver's function more or less complete might be indicated by their escape in abnormal quantity. Of the various substances that Dr. Edsall has investigated in this connection he found that phenol alone seemed to show reasonably characteristic changes. While this substance is variable in liver disease, it seems to him that a very large amount of phenol in the urine is strongly suggestive of liver disease when other evident reasons for its presence are absent.

### The Home Modification of Milk.

Dr. Theodore J. Elterich, Allegheny, emphasized a few general truths regarding the home modification of cow's milk without attempting to cover the work already done in this direction or to criticise the various methods in use at the present time. The percentages of the proteids and fat, very low at first, are gradually increased until they approximate the averages required at the end of the first year. The quantity for each feeding depends on the age of the child and the table recommended by Holt is usually followed.

### Observations on Food in Typhoid Fever.

Dr. James I. Johnston, Pittsburg, said that in the management of typhoid fever the attention should be directed primarily to the nursing, care of the patient, efficient hydrotherapeutic measures and to proper feeding; secondarily, to the employment of drugs, usually for the relief of symptoms. He discussed the question of food, about which there is diversity of opinion, and quoted the case of Dr. Stuart Patterson of Pittsburg, in which the patient had no food for twenty-one days—water only being given. The course of the disease was very favorable and the loss of flesh and strength no more marked than usual. While not agreeing entirely with those who would give no food during the period when desire for it is absent, Dr. Johnston has restricted his patients at this time of the disease very greatly, and in a study of some fifty cases he thinks he has seen some advantage, at least in comfort to the patients, when compared with fifty other cases treated immediately preceding this group. In the class of cases in which limited feeding was employed during the period of anorexia the cases were less toxic, were no more emaciated than other cases, and made a quicker convalescence. There were but three relapses, no perforations and few hemorrhages. All had flat abdomens, one only required treatment for tympanites and few any treatment for diarrhea other than stopping nourishment for a brief period.

*(To be continued.)*

## MISSISSIPPI VALLEY MEDICAL ASSOCIATION.

*Thirtieth Annual Meeting, held in Cincinnati, Oct. 11-13, 1904.*

The President, Dr. Hugh T. Patrick, Chicago, in the Chair.

The mayor of Cincinnati delivered an address of welcome, which was responded to by Dr. Dudley S. Reynolds of Louisville.

### What Shall Be Done with the Criminal Insane?

Dr. John Punton, Kansas City, Mo., said that the conflict of authorities raging between law and medicine is responsible for much miscarriage of justice. A mutual conference to adjust differences of opinion and formulate conclusions relative to the medicolegal aspects of insanity in keeping with the more advanced state of medical knowledge, which can be used as a criterion in courts of law, is greatly to be desired.

DISCUSSION.

Dr. A. Ravogli, Cincinnati, deprecated the tendency to generalize to much in discussing the criminal insane. He reported a case in which an epileptic committed several murders before his insanity was recognized.

Dr. Charles W. Hitchcock, Detroit, said that this was a very delicate question for the medical profession to decide, and a case was reported showing that justice might miscarry, even where there was an institution provided for the incarceration of those not responsible under the law.

Dr. G. Frank Lydston, Chicago, said that the entire subject of criminology should be relegated to the medical profession, so far as the physical conditions and remedies therefor are concerned. Many irresponsible individuals are punished. Punishment for crime has proved a distinct failure. Both the sane and the insane criminals should be removed from our social system and isolated. The principle should be not punishment, but simply social self-defense. We have not yet come to the sterilization of these individuals, but we undoubtedly will.

Dr. F. W. Langdon, Cincinnati, said that the legal and medical professions have different points of view, and, therefore, their conclusions must vary. He agreed with Dr. Lydston as to the punishment of the sane and insane, and said that we should not arrogate to ourselves the fixing of the penalty that probably was never right.

Dr. B. F. Bekre, Cincinnati, stated that law has been coming to medicine on this question, because the prosecutors have been securing the assistance of medical men. Society must be protected, but the question is how and when and where to take care of the criminal insane. We must determine what constitutes responsibility or irresponsibility. While the laws of the various states do not agree, there is practical unanimity among those who have studied this subject from a medical standpoint.

Dr. Dudley S. Reynolds, Louisville, spoke of the qualifications of the jury, requiring that they be not familiar with the facts and not opposed to capital punishment. Such qualifications do not require that the jury be really competent to decide these cases, and medical men are called in to testify as to the responsibility or irresponsibility of the defendant. Medical testimony is based not on an examination of the individual, as a rule, but on hypothetical questions constructed by the lawyers. The chief trouble is with the legislative conditions in the various states. Any person convicted of a felony should be unsexed rather than killed. No person in his right mind would commit a felony.

Dr. Sprague referred to the fact that the use of the asylum for the criminal insane is being rapidly extended throughout the country by the legal and medical professions. Often the attorneys for the prosecution and defense agree to rest the matter of commitment or trial with the medical commission of such an institution. Such a reference would be more frequent if there were more assurance that such a medical commission were composed of really expert medical men.

Dr. Lydston in answer to a question stated that sterilization could be effected by obliteration of the fallopian tubes in the female, and by obliteration of the vas deferens in the male,

without any effect on the individual, save the arrest of the function of procreation.

**Loss of Consciousness and Automatism in Inebriety.**

Dr. Thomas D. Crothers, Hartford, Conn., said that the claims of no recollection or consciousness of events by inebriates indicate a paralysis of certain brain sections during which the victim may act automatically and be without consciousness of the real condition. Histories of prominent cases confirm this fact, and many startling crimes have been committed in this condition. This new phase of irresponsibility has not been recognized by the courts and only recently has been studied by physicians. The defense of no recollection may be a reality in some cases, and should be recognized by physicians. Such persons are insane.

DISCUSSION.

Dr. B. F. Bekee stated that the essential point is to prove the fact of the unconsciousness and the automatism. An idea can not exist if the brain cell is not in a condition to receive and retain an image. Whether unconsciousness is produced by alcohol or by any other poison, the result is the same.

Dr. John Punton said that the medical profession ought to know the effects of alcohol on the nerve cells, but, when this question comes up in court there are as many opinions as there are physicians. It is not the individual's opinion the court asks for, but rather the consensus of opinion of the medical profession in reference to the question at issue.

Dr. Hugh T. Patrick said that it is necessary to make a very fine distinction between alcoholic automatism and automatism in the alcoholic. In many degenerates or imperfects, there is a tendency to drink too much. The automatism and the drinking may be the result of a pre-existing condition.

**Echinacea.**

Dr. C. S. Chamberlin, Cincinnati, made a plea for the recognition of echinacea as a valuable therapeutic agent. He gave a brief history and description of the drug, and protested against the suspicion with which the regular profession regards remedies introduced by irregular practitioners, and their reluctance to investigate the merits of the remedies. He cited brief reports of cases illustrating the therapeutic value of the drug as an alterative and antiseptic, and its range of application.

**The Early Recognition of Important Eye Lesions by the Practitioner.**

Dr. George F. Suker, Akron, Ohio, pointed out the early diagnostic eye lesions in diabetes, chronic nephritis and locomotor ataxia. Reference was made to the diagnostic conjunctival spot in cases of measles. He spoke of the frequency in mistaking glaucoma for trifacial neuralgia; also the frequency with which simple, chronic glaucoma is confounded with cataract. He emphasized the need of recognizing the eye conditions as a factor in chorea, functional epilepsy, neurasthenia and hysteria. The relation between gastrointestinal derangements and certain eye lesions was pointed out, and the need of a thorough ophthalmic examination in the neurotic, chlorotic and patients of this character emphasized.

**The Value of the X-Ray to the General Practitioner.**

Dr. James E. Coleman, Canton, Ill., stated that as the practice of medicine is still largely in the hands of the general practitioner, it makes it necessary for him to improve to the greatest extent his resources for diagnosing and combating disease. *X*-ray apparatus has become a necessary adjunct. To be satisfactory it must be first class. Every general practitioner should have one text-book on *x*-ray therapy. The mastery of the details and technic is not difficult when studied, but success depends on a knowledge of anatomy and proper interpretation of the screen and skiagraph.

**Macular Atrophy of the Skin.**

Dr. Edward H. Shields, Cincinnati, said that this rare disease was first described by Jadassohn in 1892 and no other case has been reported. Dr. Shields presented the following history of a case: Eighteen months ago red macular lesions were found on the legs and thighs, with no subjective symptoms. Some weeks later the patches lost redness, became softer, depressed, and the skin over the diseased area became shriveled; atrophy continued for several weeks, when the atrophic spot became soft and pale. Owing to the marked irritability of the skin the atrophic lesions did not appear very pale immediately after the removal of the clothing, but after half an hour of absolute rest they became quite pale, resembling those of morphin. He stated that treatment was of little value, yet in due course of time the process was arrested.

**Why So Many Errors in the Diagnosis of Exophthalmic Goiter?**

Dr. J. H. Stealy, Freeport, Ill., showed what a remarkably large number of cases of this disease can be found if sought for. He discussed the percentage of symptoms, the diagnostic importance of each, and the symptomatology.

*(To be continued.)*

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## MEDICAL SOCIETY OF THE COUNTY OF NEW YORK.

*Regular Meeting, held Sept. 26, 1904.*

The President, Dr. Wendell C. Phillips, in the Chair.

**Summer Work of the Health Department.**

Dr. John J. Cronin, assistant chief medical inspector, reviewed the work of this department since its incipiency in 1876. Pamphlets are now printed in several languages for distribution for mothers' instruction, with words of caution in regard to gastrointestinal diseases. There is house-to-house visitation, advice is given, and where sickness is severe a trained nurse is sent. When a child is found to be sick the store from which the milk was obtained with which it has been fed is inspected. Hot weather and ignorance are responsible for the high infant mortality. Flushing the streets after sundown would ameliorate the heat somewhat. One-third of the deaths occurred among children under two years of age, who were fed on condensed milk and prepared cereals during the month of August. The report of the inspectors during the past summer showed 215,997 families visited and the history cards numbering 35,187, all of children under one year of age.

**Prevention of Spread of Disease in New York City Schools.**

Dr. Thomas Darlington, commissioner of health of New York City, stated that the medical supervision of schools was undertaken in 1897. During the school year 1901-1902, 260,182 children attended and there were 9,703 exclusions. In September, 1902, the routine inspection of schools was begun by classes; the children passed by the inspector pulled down their own eyelids, etc., the inspector never touching a child. The inspectors found that many contagious diseases were not reported; during six months they found 561 cases of measles, 107 cases of German measles, 70 cases of scarlet fever, etc., unreported. The public libraries received daily lists of homes where contagious diseases existed. Eight trained nurses have been assigned the care of children suffering from skin and eye diseases. In 1903 there were cared for 156,186 cases of pediculosis, 106,257 cases of eye diseases, 3,307 of eczema, 3,498 of ringworm, 335 of scabies. It was recently discovered that 17 per cent. of the children were affected with trachoma.

**Disinfection by the Health Department.**

Dr. Robert J. Wilson, assistant bacteriologist of the New York City Department of Health, described the methods used in this work. During the past two or three years attempts have been made at bacteriologic control by placing in the room to be disinfected living bacilli (pyocyaneus) on threads. On the following day this was sent in for growth; if the cultures were positive the disinfection was well done. Sulphur dioxid and formaldehyd were the only two disinfectants allowed the Board of Health. In different parts of Greater New York there

were disinfectant stations where the germs which occupied the deeper parts of fabrics could be destroyed. Here a temperature of 225 degrees F. was employed for several hours.

### Specific Treatment of Typhoid Fever.

DR. T. M. HACKETT, Champlain, N. Y., said that after fifteen years of experiment with blue mass and calomel in the treatment of typhoid fever he did not hesitate to make the statement that this remedy acted as a specific in the treatment of typhoid fever. As a result of his experience he has observed these facts: 1. In all cases of typhoid fever mercury is well borne by the system; it requires more mercury to get the constitutional symptoms of tenderness of the gums when typhoid fever was present than under any other circumstances. 2. In the administration of blue mass in typhoid fever gradually as the system is impregnated with mercury just so gradually are the bacilli disappearing from the system, so that by the time the mercury begins to affect the gums the bacilli are no longer active in the system. This is signified by a gradual reduction of temperature to normal and a rapid convalescence. 3. With the use of mercury the patient's blood is in a more healthful state; mercury maintains the red corpuscles and the system does not fall into that state of grave anemia so common to the disease. 4. The patient may begin taking solid food as soon as the temperature is normal without danger of relapse; this he attributed to the state of the blood consequent on the presence of mercury in the system. 5. A few days after the beginning of the administration of mercury in typhoid the tongue becomes moist, the breath becomes less fetid and there is a desire on the part of the patient to take the nourishment prescribed. The odor of the stools becomes less fetid. He has not had a dry tongue continue over three or four days after the treatment was begun. 6. The temperature of the patient thus treated did not go subnormal after the fever left. 7. It is unnecessary, unpardonable and unscientific to salivate a patient when using mercury in the treatment of typhoid. He has yet to observe any ill effects of the slightest nature from the use of mercury to the extent only of the soreness of the gums. He called attention to the temperature charts of several recent cases which were accompanied with certificates from the State Board of Health certifying that the Widal reaction was present. The charts showed that three weeks covered the whole period of illness and that the third week was a week of convalescence.

#### DISCUSSION.

DR. EGBERT LE FEVRE said that he had had some experience with the mercurial treatment of typhoid fever. He had noted that the temperatures were reduced, but the mortality was higher than under the present plan of treatment. He believed that any plan of treatment would other results which varied according to the epidemics; in the later epidemics the disease ran a shorter course as a rule. He had endeavored to make the intestinal canal antiseptic and had failed, and he doubted if there was any agent which would place the blood in a condition to destroy the Eberth bacillus.

## *Travel Notes.*

XIII.

## THE MELBOURNE HOSPITALS.

NICHOLAS SENN, M.D.
CHICAGO.

FREEMANTLE, AUSTRALIA, Aug. 15, 1904.

Man, the masterpiece of creation, the image of God, is subject to pain, disease and death wherever chance or circumstance may have fixed his abode in the world, as

> "There is no mortal whom pain and disease does not reach."—Cicero.

Primitive man has no, or at best only an imperfect, conception of the ways and means to protect himself against the disease-producing influences and he is powerless, or nearly so, when afflicted by accident or disease. For ages civilized man has endeavored to ascertain the cause of diseases and to discover remedies for their prevention and successful treatment. In their primitive state the aborigines, living a natural life, are less exposed to injury and disease than civilized man living in luxury and intent on the accumulation of wealth or the gain of fame, for

> "Increased means and increased luxuries are the two civilizers of man."—Disraeli.

Civilization and the conditions and circumstances attending and following it have bred the most destructive diseases unknown to the primitive races. Firearms, commerce, increase of travel and the various industries incident to civilization are productive of accidents from which the natives in their original state were almost exempt. On the other hand, civilization has always been concerned in establishing effective sanitary measures and in devising rational and more successful treatment of injuries and disease. The principal functions of every intelligent and humane government consists in protecting its citizens, so far as possible, against disease and in making ample provisions for its indigent sick. Australia has met these two duties in a most creditable manner, as is so well shown by its well-organized effective Boards of Health, the many excellent hospitals and other numerous charitable institutions. The public hospitals are managed and supported nearly in the same manner as the hospitals in England. It is an inflexible rule that none of these hospitals should provide for private patients. They are supported by donations, life and annual subscribers, by government appropriations and pay patients. The medical men give their services gratuitously; the internes and nurses receive small salaries. The churches of different denominations, societies and individuals in all the states contribute liberally toward the building and maintenance of hospitals. Protestant denominational hospitals are unknown.

Melbourne is the capital of the state of Victoria. It is a beautiful city, built on the undulating hills on both sides of Yarra river, with a population of nearly half a million. Its streets are well paved, clean and well lighted with electricity, and its system of cable trams affords an easy and rapid means of reaching all parts of the city and almost every public institution. The many well-kept public parks, botanical and zoological gardens, museum and library furnish ample proof of the public spirit of its citizens. Nearly all of the business buildings and residences are either solid stone or brick structures. There is no private residence without its garden ornamented with subtropical trees, flowering shrubs and flowers. The Australian takes as much pride in his garden as he does in his house, and this applies equally to rich and poor, large residences and small houses. The city in its general aspects bears a close resemblance to Belfast, Ireland. The water supply and sewerage are now in a satisfactory condition and have contributed much in reducing the former frequency of typhoid fever.

#### THE MELBOURNE HOSPITAL.

The Melbourne Hospital is the principal general hospital of the state. It is centrally located. It is a two-story sandstone building with a wide front and several pavilions, enclosing a square in the rear of the main building. Viewed from without it presents a somewhat stern, antique and very massive appearance. One of these pavilions is devoted to diphtheria cases and stands isolated from the remaining buildings. The hospital can accommodate 300 patients. It is in this hospital that the medical students of the University of Melbourne receive their clinical instruction. It has no gynecologic staff, all gynecologic cases being referred to the attending surgeons. The more legitimate specialties are well represented. The medical and surgical cases are under the care of four physicians and an equal number of surgeons, whose services are continuous throughout the year. The resident staff consists of a medical superintendent and eight internes. The latter are selected from the graduates of the university who have the highest standing; they remain for one year and serve in the different departments by being transferred every three months. The nursing is in charge of several sisters and 92 pupil nurses. The operating amphitheater is small but well lighted and on elevated seats

guarded by iron bars provides standing room for the medical students and visitors; it contains all the essential equipments for surgical asepsis and necessary instruments. I visited the hospital under the guidance of Mr. Fred. D. Bird, one of the attending physicians and professor of surgery in the university. He showed me many cases of great surgical interest, among them several cases of intestinal and gastric surgery and the usual number of appendix operations. I was shown a case in which Mr. Bird had excised a perforated gastric ulcer of the small curvature of the stomach, four years ago, near the pylorus, in a young woman. The patient made a satisfactory recovery, but returned recently to receive treatment for obscure digestive symptoms. In another case, a fourth operation for echinococcus of the omentum in a young woman had been successful a few days ago.

In all aseptic cases the wounds had healed or were healing by primary intention. All the wards were made comfortable and cheerful by fires in open grates and a liberal supply of flowers placed on the center tables and small bouquets for each bed, gifts of the Flower Mission. Cyanid gauze for dressing retains its reputation in this institution. Fine silk has almost entirely displaced the absorbable suture in the practice of Messrs. Bird and Syme. In the absence of contraindications chloroform is used as the routine anesthetic administered with an Esmarch mask. The great work this hospital is doing for the sick of Melbourne and the state of Victoria can be seen from the last report, 1903-1904. The total number of patients treated was 22,925, and of these 4,328 were received into the wards. The number of casualties treated in the out-patients' department was 7,544. In the infectious diseases department 338 cases were treated, of which 162 were diphtheria. Although the antitoxin treatment is in constant use, intubation was performed on 39 and tracheotomy on 14, for the relief of urgent symptoms, and only two of the tracheotomies succeeded in saving life. This unfavorable experience in the treatment of this disease was due to the fact that many of the children, when admitted, were in a condition beyond the curative power of the specific treatment. One hundred and seventy-one cases of typhoid fever were treated during the year, with a mortality of 18. Pneumonia appears to have been very virulent, as 63 out of 133 cases died, a mortality of nearly 50 per cent. The surgical showing of this hospital is excellent. Exploratory laparotomy was made 39 times without a death. Of 32 cases of hydatids of the liver operated on 4 died; of 11 cases of abdominal hydatids all recovered; of 15 cholecystotomies one died; of 102 cases of appendicitis subjected to operative treatment 15 died, and in 40 cases the disease was complicated by suppuration. Ovariotomy was performed 19 times without mortality. Of 10 cases of hysterectomy 3 died; 11 cases of tubal pregnancy with one death; 11 operations for pyosalpinx without a death; 99 operations for malignant tumors, 79 were relieved, 14 not benefited and 6 died; in 100 cases of radical operation for hernia, of which number 77 were inguinal, 2 died. Of 7 cases of prostatectomy 5 were relieved and 2 died. Two cases of perforated typhoid ulcer operated on died, and of 7 cases of perforated gastric ulcer operated on only one recovered. This hospital, the oldest and largest in the city, is always overcrowded and lacks many features of a modern institution, all of which should appeal strongly to the charitably disposed citizens and an appreciative generous government to provide it with ample means to carry out its humane intentions on a larger and more efficient scale in the future.

### RADICAL CURE FOR INGUINAL HERNIA.

Australian surgeons, as a rule, prefer Bassini's method in operating for the radical cure of inguinal hernia. Professor Bird is in favor of a small incision parallel with and at least one inch above Poupart's ligament. He is careful not to injure the fibrous expansion of the superficial fascia and external oblique any more than is absolutely necessary to reach the hernial sac. Instead of using the knife freely, as is usually done, he makes liberal use of blunt dissection, thus separating instead of cutting resisting fibers. He never divides the external ring and insists that if we divide it, no suture, however deft, will make it nearly as strong as before; "we divide fibers whose integrity we can never replace." He incises the external ring only in young subjects to procure room to carry out the necessary manipulations in the canal. He believes that the unnecessary division of the strong fibers of the external ring is responsible for many relapses. He is likewise cautious not to divide any of the muscular fibers of the internal oblique and cremasteric muscles, insisting that the integrity of all these structures should be respected. The infundibuliform fascia is torn through with a pair of dissecting forceps, and the sac, carefully isolated and separated from the cord, is then proceeded with, the isolation being commenced from above and behind. The sac must be cleared as far up as the deep epigastric artery. The sac is then tied with catgut at the point where it is continuous with the parietal peritoneum and excised below the ligature. He is of the opinion that when the operation is performed in this manner deep Bassini sutures are not only unnecessary, but actually harmful. Suturing of the inguinal canal after excision of the sac he only resorts to when the hernia is old and large and when the obliquity of the inguinal canal is much impaired. The suggestions made by Professor Bird are based on anatomic facts and should receive the earnest attention of surgeons.

### PROSTATECTOMY.

This operation has found much favor in Australia. The suprapubic and perineal routes have each their advocates. Mr. G.

Fig. 1.—Australian aborigines.

A. Syme, lecturer on anatomy in Melbourne University and one of the surgeons to the Melbourne Hospital, performed his first prostatectomy in September, 1897. He resorted to Freyer's method—suprapubic intravesical enucleation of the gland. Two vesical calculi were removed at the same time and the patient made a speedy and perfect recovery. In the next case he found enucleation impossible and he had to excise the projecting middle lobe with scissors. In his fourth case the enucleated mass weighed seven ounces and had to be fragmented to permit its removal through the vesical wound. In the fourth case previously operated on for enlarged prostate, he removed through the suprapubic route four phosphatic calculi and excised the projecting middle lobe. A third operation became necessary, and at this time another stone was removed and the entire gland enucleated. All these patients recovered with satisfactory functional results. He is a strong believer in the superiority of the suprapubic over the perineal route and quotes statistics from Melbourne Hospital to substantiate the correctness of his position. He advises operation in all cases in which the obstruction is caused by the adenomatous form of prostatic enlargement.

### ALFRED HOSPITAL.

This hospital, somewhat remote from the center of the city, has a beautiful location and occupies the middle of ample grounds made attractive by trees, shrubs and flowers. It was

founded in 1874 and consists of two-story brick pavilions arranged around an open court. The wards are large, airy and well lighted and ventilated. The main operating room answers all modern requirements and has a small amphitheater for students, who receive here the benefit of extra mural clinical teaching. Three physicians and three surgeons constitute the attending staff. The consulting staff is made up of one physician and one surgeon. The surgeons attend to all gynecologic cases.

The surgeons on duty at the present time are: H. O'Hara, Esq., F.R.C.S., I. M., and L.K.Q.C. P. I.; John Cook, Esq., M.R.C.S. Eng.; R. H. Russell, Esq., F.R.C.S. Eng. As in all Australian hospitals, the outdoor department has separate attending staffs and anesthetists, electrician, dentist, masseurs, masseuses, dispenser and pathologist, complete the list of regular hospital attendants. Three resident internes are appointed for two and a half years from the graduating class of the University of Melbourne, their merits being gauged by their class standing. The junior internes are paid $250 a year, the senior internes $500. The children's ward in this hospital is one of the finest I have ever seen. The upper part of the walls are frescoed, the pictures representing fairy tales, and at the foot of each bed is suspended from an erect curved wire a small conical tin cup which visiting relatives, friends and the Flower Mission supply regularly with fresh cut flowers. I was shown here a number of cases of liver hydatids recently operated on. It is the experience of surgeons that these cysts seldom rupture into the stomach and that, as a rule, they do not give rise to adhesions. Hydatid of the kidney is very rare. This hospital has an enviable record in the surgical treatment of perforating typhoid ulcer. During the last two years six cases were operated on and of these only one died. In about half of the cases this accident is initiated by a sudden fall of temperature. Chloroform is the anesthetic of choice. Silk, kangaroo tendon, catgut, silkworm-gut and horsehair are all in use, according to the indications presented by the wound under treatment. The government appropriation for this hospital amounts to from $15,000 to $25,000 a year and the subscriptions from $10 to $45,000. Patients who can pay are charged from 50 cents to $7.50 per week, the latter figure being the maximum. This is one of the few hospitals in Australia supplied with a steam-heating apparatus. The training school for female nurses connected with this hospital has 50 pupils who serve for three years and have to pass two satisfactory and quite rigid examinations before they receive their certificate. In this connection it is worthy of notice that in each hospital the nurse's garb differs in color, all shades of blue, and gray and black, with white caps of the strangest designs, distinguish the nursing staffs of the different hospitals.

During the last year 1,910 patients were admitted to the wards and 4,750 out-patients with 2,058 casualties were cared for in the outdoor department. It is noteworthy in looking up the records of the hospital in reference to the religious convictions of the patients that out of 2,077 cases only one confessed that he had no religion, and only one placed his confidence in Confucius. Out of 122 cases of typhoid fever treated in the hospital during the last year 11 died, and of 90 cases of pneumonia 6 proved fatal. Aneurism appears to be much more common than in our country, as this hospital received 8 cases during one year. Abdominal hysterectomy has a doleful record in this hospital, as in 10 cases only 2 were discharged cured, 1 relieved, 3 remained in the hospital and 4 died.

### MELBOURNE HOSPITAL FOR SICK CHILDREN.

The Melbourne Children's Hospital is an institution that reflects much credit on the state of Victoria and the city of Melbourne. The hospital is beautifully located and consists of a number of two-story brick pavilions. The wards are large, airy and flooded with an abundance of light. Flowers, palms and evergreen plants impart to all of them a cheerful appearance, which is greatly accentuated by the presence of tidy, smiling nurses. It receives substantial government appropriations and is well supported by voluntary contributions in the form of legacies, donations and subscriptions. It can accommodate 100 children. The medical and surgical staff is made up of ten members, with Charles S. Ryan, M.B., Ch. Edin., M.B. Melb., L.M. Dublin, at the head. Mr. Ryan is also at the head of the medical department of the military forces of Victoria with the rank of colonel. The hospital has two internes and 45 nurses, who remain in training for three years. The convalescents are sent to the convalescent home for children, Brighton, in charge of Sister Danaher, a branch of this institution. I visited the hospital in company with Professor Bird, with Dr. W. H. Summons, a member of the atending staff for the outdoor department, as chaperon. The operating room is perfect and supplied with all modern improvements and appliances. We found here Dr. Mackay operating for hydatid of the liver in a boy 13 years old who had been afflicted with this disease for five years. The cyst, the size of a man's fist, occupied the under surface of the liver in the region of the suspensory ligament. The incision was made vertically, from the border of the costal arch downward. The cyst was incised, opening of cyst drawn into the abdominal incision with the index finger, contents emptied and margins of cut sutured to the abdominal wound, after which the lining membrane was grasped with a broad blunt forceps and extracted with ease. Two drains and a small absorbent aseptic dressing finished the operation. I was somewhat surprised at the extent to which the Thomas splint is used here in the treatment of tubercular coxitis and spondylitis, as its usefulness can not be compared with the plaster-of-paris fixation splint in the former and the Rauchfuss sling in the latter. During the last year the hospital cared for 1,302 sick children and the outdoor department had attendances amounting to the astonishing number of 67,489, of which number 10,930 were new cases. Three cases of hydatid were operated on, 4 of the liver, 2 of the lung and one of the brain, all recovered. Of 78 cases of rheumatism 12 proved fatal from complications. One out of 2 cases of hemophilia died. Seventeen cases of cleft palate were operated on without a death, also 10 cases of congenital dislocation of the hip by the bloodles operation without mortality. In 27 cases of chorea one died of endocarditis. Of 33 cases of empyema, 6 died. Of 146 cases of pneumonia, 7 died, while the disease proved fatal 5 times in 24 cases of bronchopneumonia, and 5 times in 32 cases of endopericarditis and endocarditis, and no fatality in 6 cases of pericarditis. Twenty-two cases of appendicitis were operated on, with 4 deaths, among them one with perforation; and 6 radical operations for hernia, with 3 deaths. In 11 cases of intussusception, the operation failed to save life in 6. Of 2 cases of cirrhosis of the liver, both died. Of 50 cases of tuberculosis of spine and larger joints, one died. No mortality in 43 fractures of the limbs, and one death in 4 fractures of the skull.

### ST. VINCENT'S HOSPITAL.

This is the only denominational hospital in Melbourne. It is conducted by the Sisters of Charity, a religious order, with the mother house at Dublin, Ireland. The present hospital is a private residence reconstructed for hospital use. It can accommodate 30 patients. Two surgeons, Mr. G. A. Syme and Dr. William Moore, and two physicians constitute the attending staff, to which must be added the different specialists, four anesthetists, the pathologist and the members of the outdoor department. Last year the Sisters received a government appropriation of $3,500. The Catholic clergy are the most liberal subscribers. A small training school for nurses is connected with the hospital, in charge of the seven sisters. One interne answers for the resident staff. An elegant four-story brick building, with all modern improvements, and which will cost $150,000, and which will accommodate 200 patients, is now in process of construction. The new building when completed will be the best hospital in Melbourne. Last year 10 cases of hydatid were operated on, all successful; 32 cases of appendicitis, with 2 deaths, in 8 the disease was complicated by suppuration; 25 cases of radical operation for hernia, without a death, and 6 cases of suprapubic cystotomy, with no mortality. The whole number of operations during the year amounted to 498, of which number 490 were relieved and only 3 died, a mortality of 1.8 per cent, a record which can not be surpassed and

which does great credit to the surgeons who performed the operations. I can not quit Melbourne without giving a brief description of a trip.

A TRIP TO THE GIANT EUCALYPTUS TREES.

On his arrival at Syndey the traveler's attention is attracted at once by two of the characteristic trees of the country, the wild fig tree and the eucalyptus tree. Two species of the former, the *Ficus australis* and the *Ficus macrophylla*, the Moreton-Bay Fig-tree, both of them indigenous through a great part of East Australia, the grandest of Australian avenue trees. They resemble each other very closely in appearance; the latter, however, is a larger tree and has broader leaves. The stems are short, the crowns broad and the roots wide-spreading. There is a dense foliage of evergreen leaves, which are oblong, with a deep green shiny upper and a pale green lower surface. The fruit is in the form of a miniature fig, with very small seeds, the favorite food of the wild pigeon. These trees are the principal shade trees in this and other Australian cities. The eucalyptus tree is the monarch of the Australian forests. It is found everywhere, on the coast, the plains, and invariably crowns every hill crest and all mountain peaks. It is an intolerant, jealous, selfish, anarchistic tree, its greatest virtue being its unconquerable patriotic sentiments. Diversity of climate and soil have succeeded in the course of thousands of years to break up the original family into nearly 400 species. Baron von Mueller has described 72. It is a strange tree. It never removes its green turban of pale green, long, narrow, pointed, aromatic leaves, but instead throws off its ragged garment of rough bark once a year, in order to exhibit its new, gay, grayish-white juvenile dress. I never lost sight of this tree during my 1,000 mile railway journey through the coast districts of Australia. The air everywhere was perfumed with the ethereal aromatic exhalations of this ubiquitous tree. I had heard much of the immense forests of giant eucalyptus trees of Australia, and was extremely anxious to satisfy my curiosity to see one of them. This desire was gratified Sunday, August 7. Accompanied by Professor Bird, his son, and Prof. G. A. Syme, we left Melbourne by rail at 11 a. m. and arrived at Healsville, 40 miles distant, two hours later. Healsville is at the foot of a range of mountains that rise to a height of from 2,500 to 3,000 feet above the level of the sea. The village is the terminal point of the railroad. The road passes through a prosperous agricultural and pasturage plain, from which the mountain ranges can be seen in the distance. The eucalyptus tree attains its largest size in the moist fertile ravines and summits of the mountains, where the rainfall is most abundant. A carriage awaited us at the depot, and we at once ascended the excellent zigzag road which leads over one of the mountain passes. From the very beginning we entered a forest of eucalyptus, with an almost impenetrable undergrowth of shrubs and bramble. Rabbits shot across the road with the speed of lightning, and the little Australian quail sought, slowly and thoughtfully, shelter in the inaccessible jungle. Magpies and the laughing jackass (Australian kingfisher) watched our progress and defied us in a language replete with mockery. It is a great treat to see a virgin forest of eucalyptus trees. As we ascended the steep, tortuous incline the trees became larger and larger, until we reached the highest elevation, when we were face to face with the patriarchs who were born centuries ago and had nearly reached the limits of their lives. Here were trees 250 feet in height and 33 feet in circumference. These veterans had not forgotten their customary habits; old and decrepit, they were engaged in throwing off their old clothing that had served them for fully a year. They began the divestment of their dilapidated clothing near the top of the evergreen crown, from where the rags were hanging down in streamers swayed to and fro by the mountain breeze, and many of them were lying in disorder at the foot of the rejuvenating veteran monarchs of the forest. They were not premature in changing their clothing. The bare parts of their bodies and limbs were already protected by a brand new coat and sleeves of a smooth silvery-white investment. The tree that lifted its head high above everything around it and reached the greatest dimensions was the *Eucalyptus amagdalina*, the giant gum tree. In some localities this tree attains a height of over 400 feet and a circumference of more than 60 feet. About the only other tree that is congenial to these anarchistic mountaineers is the fern tree. The pale green foliage and black, rough stem of the latter is in strong and pleasing contrast with the dark green crowns and white, smooth, bare trunks of the former. We found here three species of fern trees, the *Alsophila australis*, with a low, thick stem and a terminal scanty tuft of short cut leaves, the *Dicksonia antarctic* and the *Dicksonia davalliacea*, the high fern trees with a slender stem from 20 to 30 feet in height and an immense umbrella at its top made of fronds of enormous length. The Dicksonia in some localities is known to reach a height of 60 feet. The blue gum tree (*Eucalyptus globulus*), grows in abundance in Victoria. It attains exceptionally a height of 300 feet. It grows with unparalleled rapidity and yields a tough wood admirably adapted for shipbuilding and other purposes for which a durable and strong material is required. Shipbuilders can get keels of this timber 120 feet long. It is from this tree that eucalyptol and the various eucalyptus preparations are most profitably obtained. F. H. Faulding & Co., Adelaide, are the principal manufacturers of the eucalyptus preparations used as antiseptics in internal and external medications. We found in this forest a great number of one of the most beautiful of the ornamental trees of Australia—the golden wattle (*Acacia pycnantha*), opening its blossoms of golden yellow in the form of long, drooping tassels. When in full bloom the evergreen leaves are almost obscured by this golden drapery. The tree attains a maximum height of about 30 feet; its long, slender trunk is branchless almost to its very top, and when, with the earliest indications of approaching spring, it decorates itself with a crown of gold, it presents a lovely sight even in the shadow of the giants of the eucalyptus race. The sight of a eucalyptus forest intermingled with the fern trees and the golden wattles and sprinkled with the fresh and brilliant early spring flowers is inspiring and leaves a pleasant impression which time can never erase from memory.

## Therapeutics.

[Our readers are invited to send favorite prescriptions or outlines of treatment, such as have been tried and found useful, for publication in these columns. The writer's name must be attached, but it will be published or omitted as he may prefer. It is the aim of this department to aid the general practitioner by giving practical prescriptions and, in brief, methods of treatment for the diseases seen especially in every-day practice. Proper inquiries concerning general formulae and outlines of treatment are answered in these columns without allusion to inquirer.]

### Insufficient Motility of Stomach.

Fulton, in the *N. Y. Med. Jour.*, gives the following treatment for this condition:

The diagnosis must be made of insufficiency due to atony or to obstruction. In both, stagnation of the stomach contents is to be prevented, and in both a diet must be given that spares the motor powers of the stomach. Aside from these common indications, different procedures must obtain in the atonic and in the obstructive forms. In the obstructive form early diagnosis indicates removal of the obstruction, this being practically the only method of treating such cases. In the atonic cases to improve the muscle tone and motor powers of the stomach is the indication.

DIET.

In those cases with reduced motor power a diet is selected on the basis of the more feeble the motility the more liquid the diet. Milk preparations, soft eggs, gruels, soups, and the various articles of concentrated food are to be chosen. A common error is to allow the patient too much liquid food at feeding. Liquids are both heavy and bulky, and if taken in this way add to the distension and discomfort. The feeding should be small and frequent. In cases of but slight motor insufficiency, if an

analysis reveals a fairly normal gastric juice solid foods, meats, purée of vegetables, toasts, etc., may be allowed. In these cases the best results are obtained by giving the patient but two meals a day. In weak, emaciated patients the stomach is usually unable to dispose of enough nourishment for the day on the two-meal plan; such patients do better on five or six smaller meals.

MEDICINAL TREATMENT.

The author states that relief for the distress of the patient is the chief result to be obtained by medicinal treatment. Strychnin gr. 1/24 should be given three times a day. The following prescription is of service in improving the peristalsis and fermentation after meals:

℞. Creosoti .....gr. ss-i | .03-.06
Pulv. rhei
Pulv. saponis, āā.....gr. i | .06

M. Ft. pil. No. i. Sig.: One such pill after meals.

Or:

℞. Bismuth. salicylatis.....gr. x | .65

M. Ft. chart No. i. Sig.: One such powder after meals.

Medicinal measures are also of value in correcting symptoms arising from abnormalities of the gastric juice. In all cases of this sort careful analysis of the state of the secretion is to be made, and the medical and dietic efforts must be governed thereby. In the absence of HCl in gastric juice the dilute HCl given, freely diluted, in from 10 to 20 drop doses, through a glass tube, after meals, and repeated two or three times, is of decided value in some cases. If excessive acidity exists the following prescription is of value:

℞. Magnesii levis
Sodii bicarbonatis, āā.....3i | 4

M. Ft. chart No. i. Sig.: Give in one dose two hours after eating, and repeat if necessary to relieve the cardialgia.

MECHANICAL MEASURES.

*Lavage.*—Lavage is indispensable in all cases in which there is abnormal retention of food. After food has lain in the stomach several hours longer than normal, and becomes thereby a decomposing, fermenting mass, its further retention and passage through the twenty feet of intestines can result only in further harm to the patient, by the absorption of toxins and disturbance of intestinal digestion. The author recommends washing the stomach daily, night or morning, in all those cases where food is found in the stomach before the morning meal. In less severe cases lavage may be practiced once or twice a week.

*Results of Lavage.*—1. Immediate relief from distress. 2. Improvement of the tone of both the secretory and motor mechanisms of the stomach. 3. Lavage should be controlled by the physician, otherwise its usefulness may become an abuse.

The author has used internal faradization of the stomach in fourteen atonic cases with undoubted improvement in all. He is uncertain, however, how much improvement may have been the result of the electricity, since the other measures mentioned above were also used.

## Epilepsy.

Shoemaker, in the *Medical Bulletin*, outlines the treatment of this condition as follows:

TREATMENT OF THE ATTACK.

In cases preceded by an aura, a fit may sometimes be averted by encircling the limb with a moderately tight ligature. The patient may be instructed to carry with him constantly a girdle for this purpose. The inhalation of amyl nitrite may also do good at this stage. Pearls containing this agent can be provided by the patient and crushed in a handkerchief at the instant of warning of an impending attack. When the spasm is established the patient should be given an abundance of fresh air by keeping back the crowd, if the fit occurs in a public place, or opening the windows if it occurs indoors. The head should be raised, clothing loosened and measures taken to prevent him from hurting himself in his contortions. A piece of soft wood, rubber or roll of linen should be placed between the teeth to prevent biting the tongue. Allow the patient to sleep after the convulsion.

PREVENTION OF THE ATTACK.

*Hygiene.*—Fresh air, absolute cleanliness, a properly selected diet, moderate exercise in the open air (never carried to the point of exhaustion), moderate intellectual employment, avoid mental strain, strict temperance in all habits of life. Excesses of all kinds should be absolutely prohibited. Alcohol, tobacco, tea, coffee and condiments should be avoided. Constipation should be overcome.

*Causative Treatment.*—Each case should be studied to discover any exciting cause, and when such cause is found the next effort will be to remove it.

*Medicinal Treatment.*—Of the remedies used in this condition the author gives preference to the bromids and of these the potassium salt. All the other bromid salts have been tried, both alone and in various combinations. The following so-called Brown-Séquard antiepileptic mixture has found much favor:

℞. Potassii iodidi .....3i | 4
Potassii bromidi .....ʒi | 30
Ammon. bromidi .....3iiss | 10
Potassii bicarbonatis .....gr. xl | 2 | 60
Spiriti chloroformi .....3ii | 8
Infus. calumbæ, q. s. ad.....ʒvi | 180

M. Sig.: Two teaspoonfuls morning and noon and three teaspoonfuls at night, diminishing the quantity after the convulsions cease, but continuing the remedy at intervals, especially at the time when the fits are liable to recur. If the patient be weak, the infusion of digitalis may be substituted for the calumbæ.

When the bromids are prescribed for epilepsy it is best to begin with 10 or 15 gr. thrice daily and to increase the amount gradually until troublesome evidences of bromism supervene or until the daily dose necessary to hold the spasm under control has been found. The administration of Fowler's solution in 4 to 5 drop doses will often prevent the bromid eruption. Care should be taken to prevent, so far as possible, the disordered digestion, weakened heart action and impaired mentality which sometimes result from the long-continued use of the bromids. The oxid and valerianate of zinc are agents which may be employed in the treatment of epilepsy.

Borax has recently been proposed as a substitute for the bromids, and in some cases has given encouraging results. It is advised to be administered in doses of 10 grs. after meals, gradually increasing to a dram. Borax has the disadvantage of causing rashes on the skin, conjunctivitis and edema. The administration of the bromids must be carefully watched for both good and bad effects.

## Bathing During the Menstrual Period.

At the recent meeting of the American Gynecological Society J. C. Edgar presented the following conclusions on this subject: 1. All forms of bathing during the menstrual period are largely a matter of habit, and usually can be acquired by caution and gentle progression, but not for every woman does this hold good, and surf bathing where the body surface remains chilled for some time should always be excepted. 2. A daily tepid sponge bath (85 to 92 degrees F.) during the menstrual period is not only a harmless proceeding, but is demanded by rules of hygiene. 3. In the majority of, if not all women tepid (85 to 92 degrees F.) sponge bathing after the establishing of the menstrual flow, namely, second or third day, is a perfectly safe practice. 4. Furthermore, in most women the habit of using the tepid shower or tub bath after the first day or two of the flow can with safety be acquired.

# Medicolegal.

**Sufficient Evidence of Employment of Physician.**—The Supreme Court of California affirms, in the case of Scott vs. the Superior Sunset Oil Company, a judgment for $1,200 for several surgical operations and some 61 days' attendance on an employe of the company who was shot through the knee and

through the lung while protecting its land against jumpers. A majority of the company's board of directors, including both a director who was its secretary and treasurer, and the vice-president, actively participated in employing the physician and counseling with him concerning the care and treatment of the patient, all of which was done avowedly on behalf of the company. This, it is held, was sufficient to charge the corporation. It was not necessary that the employment should be made or ratified by action of the board at a regular meeting. The separate assent of a majority of the board was all that ought to be required under the circumstances presented by the evidence. Furthermore, there was no error, it is held, in admitting evidence of the knowledge of the directors in regard to the employment of the physician by its secretary, acting for the company. Such evidence was clearly proper when coupled with evidence of the express assent to the employment by a majority of the board.

## SOME 1904 IOWA LEGISLATION.

**Against Bringing Certain Drugs into Certain Places.**—Chapter 134 of the Laws of Iowa of 1904 provides that any person, not authorized by law, who shall bring or pass or cause to be brought into any penitentiary, reformatory or industrial school of the state, or the grounds thereof, or into any enclosure, building, quarry, farm, garden or other place used in connection with any such institution in which prisoners or other inmates are required or permitted to be, any opium, morphin, cocain or other narcotic, or any intoxicating liquor, etc., shall be punished by imprisonment in the penitentiary for a term not exceeding five years. An attempt to do any of the acts prohibited shall be subject to the same punishment as the completed act.

**Provision for Bacteriologic Laboratory.**—Chapter 101 of the Laws of Iowa for 1904 provides that the bacteriologic laboratory of the medical department of the State University at Iowa City is thereby established as a permanent part of the medical department of the university work, and it shall, in addition to its regular work, perform all scientific analyses and tests, chemical, microscopic or other scientific investigations which may be required by the State Board of Health, and it shall make prompt report of the results thereof, under such rules and regulations as the said State Board of Health may from time to time adopt. The professor of bacteriology of the medical department of the state university shall be the director of said laboratory and shall make, or cause to be made, all such analyses, tests and investigations as shall be required by the State Board of Health as above provided, causing the same to be made without delay and giving such analyses, tests or investigations the preference of the point of time over all other work, and shall make prompt report of the result thereof to the Board of Health, or to such person or persons as the Board of Health may by rule or designation designate.

**Registration of Births and Deaths.**—Chapter 100 of the Laws of Iowa of 1904 provides that, for the complete and proper registration of births and deaths for legal, sanitary and statistical purposes, the State Board of Health is constituted state registrar of vital statistics. Local registrars of vital statistics shall be the health officers of cities and the clerks of townships. Each local registrar shall at once, on his election or appointment, appoint a deputy, subject to the approval of the State Board of Health, and the State Board of Health may also appoint, as sub-registrars, the clerks of all incorporated villages and not more than three other persons in each township, to file certificates of births and deaths, transmit them to the township registrars, and to issue burial and removal permits. The undertaker or person in charge of the funeral shall cause a certificate of death to be filled out, and, with a statement of the cause of death by the attending physician, or, in his absence, by the health officer or coroner, and file it with the proper local registrar. A certificate of birth of the standard form adopted by the United States census shall be made out by the physician, midwife or other person attending the birth of every child born in Iowa, or in default of such person, by the parent, householder, superintendent of an institution, or other responsible person, and filed with the local registrar of vital statistics within ten days after the birth. In case the child is not named, the registrar shall deliver a supplementary blank for report of given name to the person filing the certificate, to be filled out and returned as soon as the child shall be named. The Secretary of State shall furnish blank certificates of birth and death to physicians, undertakers and local registrars. Any physician, midwife or other person violating any of the provisions of this act, or failing to properly register a birth or death as herein required, shall, on conviction, be considered guilty of a misdemeanor, and shall be fined not less than $5 and not more than $100, or be imprisoned not more than 60 days, or be subjected to both such fine and imprisonment, at the discretion of the court. The State Board of Health shall endeavor to see that the act is uniformly and officially executed throughout the state.

**Removal of Persons Sick with Infectious Diseases.**—Chapter 99 of the Laws of Iowa of 1904 provides that no person known to be infected or sick with any contagious disease dangerous to the public health shall move or be removed from one city, town or township to another city, town or township except as therein provided and by written permission of the local board of health of the city, town or township to which such person is to be removed. If any person known to be infected or sick with smallpox or other contagious disease dangerous to the public health shall, with the knowledge or consent of any member of the local board of health of the city, town or township in which he resides, be removed from said city, town or township to another city, town or township, either with or without the permission of the local board of such city, town or township to which he is removed, all expense of quarantine or care of such person incurred by the city, town or township to which he is removed shall be paid by the city, town or township from which such person was so removed. If said person be so removed to another county, said expenses shall in the first instance be paid by such county and recovered from the county from which such person had been removed. When it is determined by any physician or health officer that any person is sick with smallpox or any other contagious disease dangerous to the public health while in any city, town or township other than the one in which he resides, provided the distance be not to exceed 15 miles from his place of residence, then and in that event, if the person so diseased elect to be moved to the city, town or township in which he resides, he may be so removed by private conveyance along the least frequented highways, under escort of a health officer, to his abode immediately on determining that he is so diseased; and every such vehicle shall carry as a signal of warning, conspicuously displayed, a yellow flag not less than two feet square. All expenses of removal, care and quarantine of such person shall be paid by the city, town or township to which he is removed. Any person who shall move, or any physician or any member of a local board of health who shall cause or assist any person known to be infected or sick with smallpox or any contagious disease dangerous to the public health, to be removed from one city, town or township to another city, town or township, contrary to the provision of this act or of any regulation of the State Board of Health, shall be guilty of a misdemeanor and be punished by a fine not exceeding $100 or imprisonment not exceeding 30 days, or both, at the discretion of the court.

# Current Medical Literature.

## AMERICAN.

Titles marked with an asterisk (*) are abstracted below.

### American Medicine, Philadelphia.

*October 8.*

1 *Gastroptosis, with Special Reference to the Surgical Treatment. Henry D. Beyea.
2 The Differential Diagnosis of Gastric Ulcer. Henry W. Bettmann.
3 *The Mild and Abortive Forms of Typhoid Fever. John B. Briggs.

4 *Penetrating Gunshot Wounds of the Abdomen, with Report of Cases. J. W. Long.
5 Dilation of the Stomach, with Special Reference to 48 Cases. John J. Glibride.
6 Lessons Learned in Abdominal Postmortems. Byron Robinson.

1. **Gastroptosis.**—Attention is called by Beyea to the operation of gastropexy practiced by him for the relief of gastroptosis. The principle of the operation is that by placing three rows of interrupted silk sutures from above downward and from right to left through the gastrohepatic and gastrophrenic ligaments, a single, broad transverse fold or plication is formed in the ligaments, shortening these ligamentary supports and elevating the stomach to its normal position without in the least disturbing the physiologic mobility of the organ. No abnormal adhesions are formed between other structures; there is no fixation of the stomach, and with the formation of a broad surface of adhesion between the surfaces plicated, sufficient strength is gained in the shortened ligaments to maintain the stomach permanently in normal position. That this is true Beyea has determined by the physical examination of one patient three and one-half years and another one and one-half years after operation. Eleven cases have thus far been operated on by this method—5 by the author, 2 by Martin and 4 by Bier. All had suffered for from five to fifteen years with the characteristic and very severe symptoms of gastroptosis. The convalescence in each case was normal and easy. The patients were kept in bed in the recumbent position for four weeks after operation and on a special diet. In every case the improvement in health has been most remarkable and the relief of symptoms complete; food of any character is taken without restriction. In no instance, regardless of the time which has elapsed since operation, has the stomach changed its position. The author concludes that the completeness of the relief, the simplicity of the operation and the fact that it is practically free from danger (the estimated danger being not greater than a fourth of 1 per cent.), strongly recommend this operation in every case of gastroptosis in which the suffering is great. It is well to note, however, that the patients thus far operated on represent but one class, those with gastroptosis and without relaxation of the abdominal walls or diastasis of the recti muscles.

3. **Mild and Incomplete Typhoid Fever.**—Briggs has made a careful study of cases in the literature and concludes therefrom that it is altogether probable that mild typhoid is affecting a large number of people every autumn and winter, and that it is certain that in the majority of instances the disease is not recognized. Very few of the patients present themselves for hospital treatment; while in private practice the absence of striking features in this type of the disease accounts for its attracting less attention than the much rarer fulminant, hemorrhagic and other extraordinarily severe forms. The paucity of symptoms makes thorough physical examinations and frequent collections of blood for Widal tests apparently unnecessary. Five cases are cited and the symptoms discussed in detail.

4. **Gunshot Wounds of the Abdomen.**—The value of timely surgery in the treatment of penetrating gunshot wounds of the abdomen is shown by Long, who operated on 5 cases, with 3 recoveries. In one case death occurred nine hours after operation, probably due to hemorrhage from the liver. In the other case the patient died on the fourth day, death probably being due to overlooked bladder perforations. As points worthy of consideration he mentions the following: 1. Consider all abdominal wounds as penetrating until the contrary is proved by exploration. 2. Consider all penetrating wounds as having injured the viscera, and operate. 3. Operate promptly at the first possible moment. 4. Inspect carefully every viscus that could possibly be injured. 5. Make a careful toilet of the peritoneum. 6. Use salt solution freely in the abdomen, under the skin and in the bowels.

## Medical News, New York.

*October 8.*

7 *The Incidence of Gastric Ulcer in America. Campbell P. Howard.
8 *The Condition of the Blood and Urine in Gastric Ulcer. Thomas B. Futcher.
9 *The Pathologic Anatomy of Gastric Ulcer. Harlow Brooks.
10 *Complications and Sequelæ of Gastric Ulcer. Morris Manges.
11 *Symptomatology and Course of Gastric Ulcer. Max Einhorn.
12 Further Remarks on Orthoform in the Diagnosis of Gastric Ulcer. Frank H. Murdoch.
13 *Castor Oil and Salts. Edward P. Carlton.
14 Internal Antisepsis. J. N. Hall.

7. **Incidence of Gastric Ulcer.**—A careful study of the hospital records of cases of gastric ulcer with reference to their geographic distribution leads Howard to conclude that both clinically and pathologically gastric ulcer is less frequent in America than in London and on the continent. And, that both clinically and pathologically, ulcer is more common in the northeastern than in the more southern regions of America, with the exception of San Francisco.

8. **Blood and Urine in Gastric Ulcer.**—In the past fifteen years 77 cases of gastric ulcer and 5 cases of duodenal ulcer were admitted to the Johns Hopkins Hospital. Futcher presents the blood and urinary findings of the cases in which such examinations were made. The red cells were counted in 44 cases. The highest count was 6,780,000; the lowest, 1,912,000; the average of 67 counts in these 44 cases was 4,071,000. The leucocytes were counted in 45 cases. The highest count was 40,000; the lowest, 1,100; the average of 263 counts was 7,500. The hemoglobin was estimated in 44 cases. The highest was 105 per cent.; the lowest, 12 per cent.; the average of 62 separate determinations was 58 per cent. The average color index was .72. The blood picture in the series was that of a secondary or chlorotic anemia. The alterations that may occur in the urine are neither striking nor constant, and may occasionally be accidental and due to some other cause. Albumin and casts were present in 14 cases; a trace of albumin alone in 7; in 55 the urine was negative so far as albumin and casts were concerned, and in 5 no record was made. If dilatation be considerable and the fermentations due to micro-organisms increase, the urine may contain an excess of etheral sulphates and indican. Acetone and diacetic acid may occur in the urine in gastric ulcer.

9. **Pathologic Anatomy of Gastric Ulcer.**—Brooks believes that primarily gastric carcinoma frequently arises in the healing lesions. Two of his cases of gastric cancer showed this distinctly, both in their clinical history and from the subsequent anatomic findings.

10. **Complications and Sequelæ of Gastric Ulcer.**—In 52 cases studied by Manges the following complications were noted: Hematemesis, 10; perforation, 4; perigastritis, 2; intestinal obstruction, 1; thrombosis of splenic vein, subphrenic abscess, gangrene of spleen, abscess of liver, and necrosis of lung. 1. The sequelæ were, carcinoma, 4; pyloric stenosis, 6; recurrence, 2.

11. **Course of Gastric Ulcer.**—In Einhorn's experience the percentage of seemingly permanent recoveries from gastric ulcer is much larger than the figures quoted by others. He suggests that this may be due to the way the patients live after a cure has been obtained. Those leading a rational life, avoiding too coarse foods, and violent exercises, have a greater chance of remaining well than those who can not have the much desired care. The percentage of recurrence is greater in hospital patients than in private practice.

13. **Castor Oil and Salts.**—In order to overcome the repugnance to these two remedies Carlton prescribes them as follows:

| | | | |
|---|---|---|---|
| R. | Vanillin | gr. xx | 1 \| 3 |
| | Olei. menth. pip. | ʒj | 4 |
| | Garantose (saccharin) | ʒiss | 6 |
| | Alcohol | ℥iij | 100 |
| | Tinc. persionalis | ʒss | 16 |
| | Olei ricini, q.s. ad. one-half gallon | | 2000 |

Dissolve the vanillin, oil of peppermint and garantose in the alcohol. Add the tincture of cudbear to the oil and shake thoroughly. Finally unite the two mixtures. Carlton says that this mixture keeps well, looks nice, is pleasant to take,

does not leave a bad after-taste, and for all practical purposes is a disguised oil.

| | | | |
|---|---|---|---|
| R. | Magnesii sulphatis | ʒxxxii | 1000 |
| | Fluidi cardamomi comp. | ℥ii | 64 |
| | Vanillin | gr. xx | 1.3 |
| | Garantose | ʒii-iv | 8-16 |
| | Alcohol | ℥ii | 64 |
| | Glycerin | ℥ii | 64 |
| | Coffee, roasted and ground | ℥ii | 64 |
| | Aquæ q.s. ad. one-half gallon | | 2000 |

Stir the ground coffee in half a gallon of boiling-hot water and allow it to stand for from ten to twenty minutes. While still hot add enough of it to the magnesium sulphate to make about three and one-half pints. Dissolve the vanillin in the alcohol, add the glycerin and then the cardamon. When the first solution is cooled somewhat add the second mixture to it. After shaking thoroughly add the garantose and enough of the coffee infusion to make one-half gallon. Filter through a covered filter. An ounce of this solution contains half an ounce of magnesium sulphate. The solution is said to keep well, has a dark, whisky-like color, a nutty odor, and is easy to take, warm or cold. It should be taken with twice its volume of water.

## New York Medical Journal.

*October 8.*

15 *Dupuytren's Finger Contraction. Clarence A. McWilliams.
16 *A Vesical Calculus of Unusual Size. A. B. Wright.
17 Respiratory Education in the Treatment of Lung and Heart Disorders. J. Madison Taylor.
18 The Present Condition of Tenontoplasty. (Concluded.) Professor Vulpius.
19 The Economics of Tuberculosis. John B. Huber.
20 Vulvovaginitis in Little Girls; a Clinical Study of 190 Cases. (To be continued.) Sara Welt Kakels.
21 Observations on Carbolic Acid Poisoning. Charles V. Burke.
22 Case of Syphilis in a Boy Six Years of Age, Contracted by Coitus. G. Frank Lydston.

**15. Dupuytren's Contraction.**—McWilliams reports a case which was operated on with the result that the patient had a hand which was as useful as it ever had been. The sensation was perfect in all the fingers except in an area the size of a lead pencil on the center of the palmar surface of the last phalanx of the little finger, where there was some numbness and insensibility. The principle of the operation was the excision of the fascial bands. It is described by McWilliams as follows:

Tourniquet about lower arm. Incision longitudinally along the palmar band continued on the first ring finger phalanx. Two incisions made from near the extremity of the first incision, one over the band going to the middle finger, the other to the little finger. Skin edges dissected away on both sides of the incision from the dense, underlying fascia. Small bands connecting the fascia and the skin had to be divided. The prominent longitudinal band was about two-fifths of an inch wide and of the consistency of cartilage. It could only be cut away piecemeal, as it was intimately adherent to the tendon sheath beneath, which latter was with difficulty recognized and was opened in one place by mistake. The digital nerves were not clearly identified until they were traced back into the palm from the sides of the fingers. After the palmar band had been excised, the fingers still resisted extension. This was found to be due to accessory bands extending to the sides of the fingers. It was impossible to dissect these all away, so that it was necessary to be content with transverse division of them, thereby running the risk of dividing the digital nerves. The fingers finally could be straightened after stretching the skin, which cracked slightly in one or two places. The opening in the tendon sheath was closed with catgut and the skin brought together with fine silk, an opening being left in the middle of the palm for a small gauze drain. The tourniquet was removed, a copious dressing applied, and the hand with the fingers perfectly straight bandaged to firm splints, anterior and posterior.

Careful post-operative treatment, says McWilliams, is highly essential. Splints should be applied until healing has taken place. At the end of two weeks they may be removed each day for gradually increasing periods, when massage and passive motions should be instituted. No greater degree of extension should be applied immediately than can be employed without too much tension being exerted on the wound for fear of gangrene. In bad cases it may be well to have the patients wear at night for some time some form of splint or retentive apparatus to hold the fingers in full extension.

**16. A Vesical Calculus.**—The stone in this case was found in the bladder of a boy aged 7 years and measured 2½ inches in length and 1 inch in thickness. It was composed of ammonium and magnesium phosphates and weighed 14.96 grams. The patient recovered.

## Medical Record, New York.

*October 8.*

23 Perineal Prostatectomy, with Report of Ten Cases. Henry H. Morton.
24 Hospital Notes on Epidemic of Cerebrospinal Meningitis. José M. Ferrer.
25 *Early Cirrhosis of the Liver and Its Treatment. Hubert Richardson.
26 *Case of Strangulated Umbilical Hernia with Unusual Features. J. J. Buchanan.
27 Case of Supposed Primary Tuberculosis of the Pharyngeal Tonsil. D. M. Barstow.
28 *Diabetes in Two. Leonard Weber.

**25. Treatment of Cirrhosis of the Liver.**—After a brief discussion of the physiology of the liver and its relation to the etiology of cirrhosis, Richardson considers the treatment. He advises the following: Attention to gastrointestinal digestion, because if the food supply of the organism is perverted or reduced, it can not be expected to recuperate. The elimination of bile from the liver should be increased by the administration of sodium glycocholate with the addition of small doses of mercury. The fluidity of the bile can be increased by the administration of alkaline mineral waters with sodium salicylate. Biniodid of mercury with iodid of potassium has a very beneficial effect in many cases of nephritis which are associated with hepatic insufficiency. Hepatic cirrhosis is the result of a toxemia and its treatment must, therefore, consist in the removal of the cause of the intoxication, with, at the same time, stimulation of the liver, so that it may do its part in the oxidation and elimination of the poisonous substances.

**26. Strangulated Umbilical Hernia.**—The case reported by Buchanan was complicated by gangrene of the abdominal wall overlying the hernia, and destruction of the free surface of the cecum, the ascending and transverse colon, with the distal border of the splenic flexure. After excision of the gangrenous portion of the bowel the ileum was implanted into an opening in the side of the sigmoid by simple continuous suture. The patient made an uneventful recovery.

**28. Diabetes in Two.**—Weber reports three instances of this kind where the husband became rather acutely affected with diabetes after the wife had been a sufferer from it for ten years or so. There was neither consanguinity nor similarity of constitution, disposition or temperament; indeed, the two partners were mentally and physically about as different as could be. Their domestic life, however, their habits and the kind of food consumed had been the same for many years. They had always slept together. Weber suggests that it is not desirable that a diabetic and a non-diabetic person should habitually sleep in the same bed. The acetone exhaled with the breath and the sweat of the diabetic might possibly, in the course of years, affect the physiologic functions of the liver and pancreas, with regard to dextrose, through the blood and nervous system. Then, too, the hopeless state of health of a beloved person might affect a sympathetic partner.

## Boston Medical and Surgical Journal.

*October 6.*

29 Gastric Ulcer in Children. (To be continued.) Elbridge G.
30 Pericemental Abscess. D. D. Smith.
31 *A Comparison of Anesthetics; Results from Chloretone. Theodore C. Beebe, Jr.
32 Examination of Pleural Fluids with Reference to Their Etiology and Diagnostic Value. (To be continued.) Percy Musgrave.

**31. Comparison of Anesthetics.**—Beebe presents the statistics obtained from 214 cases, in 65 of which gas and ether were used, in 34 ethyl chlorid and ether, in 110 anesthol and ether, and in 5 anesthol alone. He finds that there does not seem to be any class of cases in which ethyl chlorid has any advantage over either gas or anesthol, while its expense is a distinct disadvantage in a large clinic. Its record for safety has not proved equal to gas and anesthol. In a large clinic where speed is required gas is by far the more desirable. The absence of odor also tends to make gas the more popular. In alcoholic or powerful individuals who take gas poorly, or where there is some heart or lung complication, anesthol is a very efficient adjunct. Anesthol causes least disturbance of the pulse and

respiration rate, gas next, and ethyl chlorid most. Gas is the quickest to produce its effect, ethyl chlorid next, and anesthol last. On the other hand, profound anesthesia may be obtained with safety for a greater time with anesthol than with either of the other two drugs. During administration of the anesthetic there is the least struggling with anesthol, next with gas, and the most with ethyl chlorid. Beebe also noted the results obtained from the administration of chloretone to prevent nausea and vomiting after anesthesia. Chloretone, in amounts from 5 to 36 grains, given in 5-grain capsule, was used in 164 cases. The best results were obtained in adults with 10-grain doses given twenty to thirty minutes before starting the anesthetic. If given inside of twenty minutes the patient is liable to vomit soon after the anesthetic is started, thereby losing all benefit of the drug. While chloretone has not always proved a reliable specific in preventing nausea and vomiting, it has been a great aid. The patients made a quicker recovery than when nothing was given. Vomiting, when present, usually took place before the return to consciousness, so that the patient had no distinct recollection of the occurrence. In more than half of the cases there was no conscious nausea or vomiting.

### Cincinnati Lancet-Clinic.

*October 8.*

33 *Strontium Bromid. Joseph Eichberg.
34 The Discharging Eye. Mark D. Stevenson.

**33. Strontium Bromid.**—Eichberg advocates the use of strontium bromid in 10-grain doses three times daily as a diuretic, particularly in the nephritides. If necessary the dosage is steadily increased until the patient passes between three and four pints of urine; then the dose is reduced to 5 grains. Although strontium bromid is less serviceable than digitalis as a diuretic, there are many persons who bear digitalis badly or in whom the drug is contraindicated, and in such the strontium salt may render most valuable aid.

### St. Louis Medical Review.

*October 8.*

35 Remarks on the Surgery of the Biliary Passages. (Concluded.) Maurice H. Richardson.

### American Journal of the Medical Sciences, Philadelphia.

*October.*

36 *Acute Leukemia in Early Life. Frank S. Churchill.
37 A Case of Acute Lymphatic Leukemia. R. C. Rosenberger.
38 Experimental Arthritis and Endocarditis Produced by a Streptococcus Isolated from the Blood of a Case of Rheumatism, Endocarditis and Chorea. M. J. Lewis and W. T. Longcope.
39 Operations for Primary Carcinoma of the Liver. Leonard Freeman.
40 *The Shape of the Chest in Health and in Pulmonary Tuberculosis. L. Brown and E. G. Pope.
41 *Pulmonary Streptothricosis. Alfred S. Warthin and Herbert S. Olney.
42 *Tuberculosis and Heart Disease. George Wm. Norris.
43 Hemagglutinins of Bacterial Origin. Richard M. Pearce and Charles K. Winne.
44 Report of an Anomalous Lateral Sinus and a Case of Thrombosis of the Lateral Sinus. Barton H. Potts.
45 A Case of Glioma in the Cella Turcica. F. H. Howard and E. E. Southard.
46 Diabetic Glycosuria. Heinrich Stern.
47 *An Unusual Ovarian Condition. Lewis Schooler.
48 Studies on the Capsule of the Kidney. H. Emerson.
49 On the Early History of Cerebral Localization. John E. Donley.

**36. Acute Leukemia in Early Life.**—Churchill cites 14 cases culled from the literature and adds one from his own practice. The patient, aged 4, always had good general health and did not have any of the acute diseases of childhood. The family history showed a tubercular taint. Illness began a few months before advice was sought, but the only symptoms were a loss of appetite and a gradually increasing waxy pallor. The blood count showed 3,500,000 red cells, 10,000 white cells; hemoglobin, 75 per cent. There were no signs of hemorrhage anywhere and no tenderness over the long bones. On the seventeenth day of the illness the spleen was felt one inch below the ribs. The pulse rose gradually to 134, but was strong and regular, except at night, when some irregularity was noted. Blood appeared in the stools on the twenty-seventh day, and continued to appear until death ensued on the twenty-ninth day. The bacteriologic examination of the blood revealed streptococci. The day before death occurred the blood findings were: Red, 1,280,000; white, 8,000; hemoglobin, 15 per cent. A differential count was made of 1,000 white cells. Of these 98.2 per cent. were mononuclears, 1.55 per cent. polynuclears, .3 per cent. eosinophiles, 1 normoblast and 1 myelocyte (?). At the autopsy there was noted in the organs and tissues generally an infiltration with lymph adenoid cells, closely resembling the small mononuclear lymphocytes seen in the blood during life. The bone marrow was replaced by a reticulum filled with blood containing large numbers of nucleated red cells, but few giant cells were found. Churchill concludes that all cases of leukemia are myelogenous in origin and that the acute variety is more apt to be of the lymphocytic type. Although the disease is rare in early as well as in later life, it is probably more common than has been supposed, 22 cases of the acute or subacute variety having been recorded since 1898, while previous to that date only 7 cases are on record. The course of the disease in children differs from the adult type only in minor details; hemorrhages are fewer and less severe; the lymphocytosis is more apt to be of the small variety. The disease is always fatal.

**40. Chest in Pulmonary Tuberculosis.**—Brown and Pope have made a very careful study of the shape of the chest and its changes in disease, especially in pulmonary tuberculosis. They find that the measurements of the normal chest up to this time have not been determined with sufficient accuracy to allow of very positive conclusions. Race, age, occupation and altitude are factors that must be considered in determining the normal measures and relations. The chief impression they gained from their study is that the chest, which is subnormal in its diameters and normal or supernormal in its length, is the chest more subject to pulmonary tuberculosis, though whether in many cases the disease liability and the shape of the chest are not both results of the same conditions and not casually connected is an open question. Influences which tend to improve the development of the chest tend also to prevent consumption, and this may account for the relative immunity of the well-developed chest. The anteroposterior diameter of the chest in health may be stated to be about 20.5 cm. at the level of the nipples, the transverse diameter about 28 cm., giving an index of 73. In the early stages of pulmonary tuberculosis the anteroposterior diameter at the level of the fourth costal cartilage is about 19.5 cm., the transverse about 27, giving an index of 72. In advanced stages the figures are about 19 cm. and 25 cm. and the index 76. The chest index is readily changed within certain limits in the individual. The female chest shows a tendency to a lower index than the male. Pulmonary tuberculosis has a tendency to reduce the diameters of the chest, and it seems, as if it also reduced length. The progress of the disease probably tends to increase the index, though further data are necessary before this can be confidently stated. The authors also found that there seems to be some tendency for the chest in pulmonary tuberculosis to acquire a larger or smaller index—that is, to divide into two types, one flat (index 68 to 70), and one deep and round (index 78 to 80), but both reduced in size. The relation of the diameters does not appear to have any prognostic value, as at either extreme there is no tendency in early cases of pulmonary tuberculosis to show an unduly large proportion of extreme indices. The change of index in pulmonary disease is probably not due to emaciation, but to change in bulk of the lungs. The chests of patients receiving sanitarium treatment showed that there is a marked increase in both expansion and respiratory movements, more striking in advanced than in incipient cases.

**41. Pulmonary Streptothricosis.**—Among the recently reported cases of human infection with streptothrices there stands out prominently a small but exceedingly interesting group of pulmonary cases presenting the clinical picture of tuberculosis, broncho-pneumonia or gangrene, but in which the infective agent appears to be some form of streptothrix differing from *Streptothrix bovis communis*. Warthin and Olney add to the casuistics of this subject one case. The patient, aged 45, a

farmer, has always been well, although not strong. His present trouble began with an attack of grip, after which a moderate cough and expectoration persisted. He became very much weakened and emaciated and finally was obliged to go to Colorado, a diagnosis of tuberculosis being made. Chest expansion was normal; there were no areas of dullness and no signs of cavities. Respiration was labored. On auscultation, blowing breath sounds and dry crepitant râles were heard all over the chest. The sputum was muco-purulent in character, had no disagreeable odor, but was raised with difficulty. The temperature ranged from 102 to 103. The clinical picture suggested a chronic bronchitis or broncho-pneumonia of tubercular origin. The sputum contained great numbers of minute grayish granules, which proved to be masses of a filamentous organism closely interwoven and branching freely. With 25 per cent. sulphuric or nitric acids they were "as acid-fast as the tubercle bacillus," but gradually lost their stain when washed in 95 per cent. alcohol. A very thorough search was made for the tubercle bacillus, but none were found. With Gram's the branching threads stained beautifully. Streptococci and staphylococci were present in small numbers. The organism showed true branching and beading. The existence of such a condition as the one in the case cited is of great importance insofar as the question of the differential diagnosis of tuberculosis is concerned. It was impossible to make cultures in this case so that an absolute identification of the species of streptothrix is impossible. The authors believe, however, that it is the *Streptothrix eppingeri*, or a very closely related species.

42. **Tuberculosis and Heart Disease.**—Within the last year Norris examined all the postmortem records at three hospitals, aggregating a total of 7,040, and collected the data from all those which showed tuberculous lesions of the lungs, pleura, pericardium, heart and great vessels, with a view of studying their frequency and relationship. Of these autopsies, 1,764 were tuberculous cases. Norris also reviewed the literature, and had access to 1,276 clinical histories. Statistics have also been gathered from 57 successive cases of valvular heart disease which have come to autopsy. All this work was suggested by the teachings of Rokitansky that valvular disease of the heart, especially when affecting the mitral or aortic valves, as well as aneurisms of the large vessels, hydrothorax and even scoliosis lessen the tendency to pulmonary tuberculosis. Norris suggests that the increased resistance to tuberculosis in individuals with scoliosis probably exists not by reason of venous stasis, but because patients who have recovered from an attack of tubercular bone disease have usually developed an inhibitory capacity to tuberculosis of considerably greater potency than that possessed by an unaffected organism. In view of the frequency with which tuberculosis of the lungs has been found to be associated with valvular heart disease, Norris concludes that the latter exerts but very slight influence, if any, on the former, either as an inhibitive or curative influence, even if satisfactory compensation is maintained. Considering the relative frequency of valvular lesions in general, mitral stenosis does not seem to be less often coincident with tuberculous disease of the lungs than other varieties of heart lesions. Stenosis of the pulmonary orifice, however, seems to favor the development of tuberculosis of the lungs, and a very large proportion of these cases die of the latter disease. It is doubtful whether smallness of the heart predisposes to pulmonary tuberculosis to a greater degree than is explainable by the general systemic underdevelopment and lack of resistance which such individuals often exhibit. It is a fact, however, that small hearts, either as a result of wasting or hypoplasia, are commonly found at tuberculous autopsies, while large hearts are not often encountered in uncomplicated cases. Arterial and endocardial thickening is a common result of tuberculous intoxication, but it is doubtful whether this process attains a sufficient degree to produce valvular incompetency. Tuberculous endocarditis and myocarditis, particularly the former, occur with considerable rarity; but pericarditis, especially the chronic forms, very frequently owes its existence to the presence of the tubercle bacillus. Tuberculosis of the aorta also is rare; the condition may result in the formation of an aneurism. The cardiac muscle undergoes various forms of degeneration in pulmonary tuberculosis, fatty and fibroid changes being very common, a fact which explains the signal failure of digitalis and certain other heart stimulants to benefit these cases. Uncomplicated cases of pulmonary tuberculosis often exhibit such striking differences in resisting power, and frequently evince such a remarkable tendency toward recovery, even in seemingly hopeless cases, that we should accept only the most absolute evidence as proof that either the coincidence of another pathologic condition or the administration of a special remedy has conferred a benefit on the patient.

47. **An Unusual Ovarian Condition.**—In the case reported by Schooler, an enlarged fallopian tube extended from the uterus to the enlarged and displaced spleen, and was so firmly attached as to admit of no displacement. The spleen was at least six times its normal size, black, and glistened like an old blood clot, but was firmer. The structures were divided between two ligatures and the abdomen closed. Obstruction of the bowels followed in nine weeks, and operation showed extensive adhesions almost the entire length of the descending colon. The patient recovered. Previous to the second operation, Schooler believed that this was a case of floating spleen, but the findings at the last operation caused him to abandon that theory. He offers no solution of these findings.

### St. Paul Medical Journal.

*October.*

50 The Relationship of the Minnesota State Board of Health to Water Supplies. F. F. Westbrook.
51 *Tuberculosis a Preventable Disease, with Especial Consideration of Distribution of Tubercle Bacilli and the Usual Avenues of Infection. J. Frank Corbett.
52 Causes and Treatment of Acute Articular Rheumatism. E. A. Hensel.
53 The Surgical Treatment of Epithelioma of the Lip. J. Clark Stewart.
54 The Indications for Operation on Enlarged Cervical Glands. Warren A. Dennis.
55 Surgery in General Practice. W. A. Gerrish.
56 Medical Department of the U. S. Army. E. B. Frick.
57 The Inebriate, a Medical and Social Problem. J. W. Dunning.

51. **Distribution and Prevention of Tuberculosis.**—Corbett gives a general review and cites the statistics taken from 84 cases of tuberculosis in Minneapolis, which are as follows: Tubercular history, no contact with tubercular members of family, 8; tubercular history and contact with tuberculous members of family, 20; no tubercular history and no contact with tuberculous members of family, 36; no tubercular history, contact with tuberculous members of family, 7; tubercular history and contact with tubercular associates, 3; no tubercular history and contact with tubercular associates, 7. The following rare and unusual methods of infection were discovered: 1. Infection from a coat. A Scandinavian mail carrier, previously healthy, developed tuberculosis soon after wearing a fur coat which had formerly been worn by a man who died from this disease. 2. Infection from husband apparently cured, to wife and brother. 3. Infection from house. Case 1 developed consumption and died. The rooms, with furnishings, were rented to Case 2, who also developed the disease and died. Case 3 rented the room, and after an attack of the disease went south and recovered completely. After the house had been thoroughly fumigated and cleaned, no new cases developed. 4. Infection following close on syphilis as general miliary tuberculosis. Developed in secondary stage. Three cases. 5. Infection following typhoid. At a postmortem examination lesions of typhoid and tuberculosis were found. 6. Infection of a family, father, mother, son and daughter, who had been in intimate contact. No disinfectants were used. 7. Infection of nurse, orderly, and scrubgirl. The prophylactic measures advocated by Corbett for the prevention of tuberculosis are those with which all physicians are familiar, and, therefore, need not be repeated at this time.

### New Orleans Medical and Surgical Journal.

*September.*

58 An Interesting Case of Nephrectomy and Nephrolithotomy. G. Frank Lydston.

*October.*

59 *Removal of the Lens in High Myopia. Henry D. Bruns.
60 *Silver Nitrate Injections in the Treatment of General Pyogenic Infections. Joseph Hume.

**59. Removal of Lens in High Myopia.**—Bruns says there are three classes of myopes for whose benefit this operation may be considered: 1. Extreme myopes of elderly or middle-age in whom the pathologic changes do not exceed the production of conus. In these the operation is unnecessary, except for particular reasons, such as the relief of recurring attacks of pain with injection of the eye, a condition that renders existence more or less miserable. They can usually be assured of useful vision, that will outlast the remainder of their lives, by properly adjusted glasses. As a rule, the danger of the extraction will outweigh the benefits conferred, for these persons will be least appreciative of the improved vision that may be obtained. 2. Extreme myopes of elderly or middle-age, in whose eyes extensive pathologic changes have taken place. Here the operation is virtually contraindicated, and only exceptional and imperative reasons should lead to its being undertaken. The dangers of extraction are very great. 3. Extreme myopes between the ages of 10 and 25. The prophylactic value of the operation is very high, for without it the patient is almost surely doomed to a purblind middle and old age. The operation can be very safely and painlessly done by cautiously repeated discissions. Vision is usually at once greatly improved as to kind and degree. Length of time is not to be considered in comparison with the horror of destroying a healthy, useful eye in an attempt to improve vision, or obviate a danger that the patient may never live to encounter. One eye only should be operated on at a time, and a long interval should elapse before the second eye is operated on, so that every opportunity may be afforded to judge of the degree and permanency of the result.

**60. Silver Nitrate Injections.**—Hume has utilized this treatment in 11 cases of pyogenic infection, with two deaths, one thirty-three days after the patient was reported doing well, and this death was due to an intercurrent affection. The other death was the result of embolism occurring in the course of malignant endocarditis. The silver injection was given 20 times, all the cases, with one exception, being *in extremis*. The injections were given as a last resort. In all the injections a characteristic reaction followed. In typhoid fever the leucocytes rose from about 5,000 to 20,000; the reds decreased about 800,000, and the hemoglobin fell about 10 per cent. In acute miliary tuberculosis the white cells before injecting numbered 4,000; they disappeared after the injection, and then reappeared and rose to 10,000. The solution was given over fifty times with no untoward results save a localized phlebitis twice, which Hume subsequently was able to avoid by handling the vein less. The injection has no influence on wound healing, nor does it interfere with kidney function. The urine is usually increased in amount, and in one case of acute nephritis of toxic origin the urine, which contained no casts, blood cells and albumin, became normal in quantity within forty-eight hours after the silver injection. Hume uses 1 c.c. of a fresh 10 per cent. solution of silver nitrate in 1,000 c.c. of sterile or sterile distilled water, each 100 c.c. of the solution containing 10 milligrams of silver. As a rule, he injects 500 c.c. at a time, although weaker and stronger solutions may be used. It is advisable to use only freshly made solutions at a temperature of 110 or 115, and they should be used rather slowly, so that 100 c.c. are introduced into the vein every two or three minutes. Any superficial vein of sufficient size may be selected, but the median cephalic, or basilic, are the most suitable. The injection is made under the usual antiseptic precautions. Immediately after there is a rise in temperature, followed by a gradual decline, which is accompanied by the most profuse sweating which lasts for hours but does not weaken the patient. Within twelve hours the temperature is usually about normal, and the general condition of the patient is considerably improved.

### Carolina Medical Journal, Charlotte, N. C.

*September.*

61 Dermoid Tumors of the Conjunctiva. Richard H. Johnson.
62 The Nephritides; a Review. Robert E. Mason.
63 *Gelatin Treatment in Aneurism. E. G. Williams.
64 Report of Injuries of the Brain and Cord. P. M. King.
65 Some Notes on the Symptoms and Diagnosis of Cholelithiasis. Stuart McGuire.

**63. Gelatin Treatment in Aneurism.**—An aneurism of the abdominal aorta was treated by this method by Williams, six injections being given in seven weeks, 90 c.c. in all, of a solution containing 6.5 grams of gelatin and .4 of a gram of calcium chlorid. At this time the patient felt very well, was free from pain and was able to walk about with comparative ease. The aneurismal mass was firmer and the bruit less distinct and of a higher pitch. The injections of gelatin were continued through the following eight months at intervals of about two weeks, but larger injections were given, from 20 to 60 c.c. of the solution. The patient died ten months after the beginning of the treatment, the injections failing to give relief from pain and discomfort toward the end. At the autopsy a dense laminated antemortem clot, crescent-shaped and thickest in the middle, was found to occupy the anterior wall of the sac, but did not appear to be closely adherent to the wall. Microscopic examination of the clot showed it to consist of a dense mass of fibrin, apparently deposited in layers at different times. The aneurism ruptured posteriorly. Another case was given three injections, 30 to 40 c.c. of a solution containing 10 per cent. gelatin, but died within a month. Two other cases of suspected aneurism of the thoracic aorta were subjected to the same treatment, but without result, except that the patients believed that the pain was temporarily relieved. Williams urges that the treatment is one that should be given a thorough trial. It is practically painless, if given with due care, and so far it seems to be harmless, if the solution is properly sterilized. The gelatin undoubtedly increases the coagulative power of the blood, but its use is of value only in cases of saccular aneurism. Gelatin injections doubtless are of great value in many cases of hemorrhage and other conditions where a prompt increase in the coagulative power of the blood is desired.

### Virginia Medical Semi-Monthly, Richmond.

*September 23.*

66 *Treatment of Typhoid Fever. William S. Gordon.
67 Treatment of Malaria. Robert M. Sterrett.
68 Pain—Its Importance in Health and Disease. R. D. Garcia.
69 *Present Status of the Flexible Rectal Tube. Samuel T. Earle, Jr.
70 Gastric Ulcer in Children. E. G. Cutler.
71 Recent Impressions of the Medical Society of Virginia. Herbert Old. Proposed Reorganization of the Medical Society of Virginia. Richard T. Styll.
72 Ibid. Wm. S. Stoakley.
73 Ibid. Landon R. Edwards.
74 Male Neurasthenia. E. Cutter.

**66. Treatment of Typhoid Fever.**—The routine treatment of typhoid fever is reviewed by Gordon, who, in closing, calls attention to certain mistakes which ought to be guarded against, such as friendly but damaging visits; too much or too frequently repeated feedings; feeding too often at night; too much temperature recording; too little water; disregard of antiseptics in the mouth, nose and pharynx; failure to examine the urine at intervals, and to see that the patient sleeps sufficiently.

**69. Flexible Rectal Tube.**—Earle refers to the use of the long, flexible rectal tube, which usually coils on itself in the lower portion of the rectum between the first of Houston's valves and the anal margin. In order to overcome this, he suggests the following procedure: With the patient placed in the knee-chest position, with the head and shoulders lowered (if the patient is too weak, then in Sim's position, with the hips elevated on a pillow), the high enema can be given with the most positive results by using the short rectal nozzle. Even in cases of impaction the water so introduced can be made to distend the bowel and to get beyond the point of obstruction by sufficiently elevating the bag containing the water. By using a large quantity of water, says Earle, it can be made to run round as far as the ascending colon, so that in every conceivable condition calling for the high enema this procedure is the most certain, simple means for accomplishing the desired end. Still another desirable object is obtained by this method, both in the use of high and nutrient enemas, and that

is, the water is not allowed to accumulate in and distend the lower portion of the rectum and thus bring on the expulsive efforts before the desired quantity of water has been introduced. In the case of nutrient enemas, they are retained more easily and are spread over a much larger surface for absorption.

### Medical Age, Detroit.

*September 25.*

75 Gastroptosis. M. E. Corbett.
76 New Therapeutic Agent of Value in the Treatment of Epilepsy, with the Report of a Case. Hugo Erichsen.

### Columbus Medical Journal.

*September.*

77 Treatment (a) of Diffuse Suppurative Peritonitis Following Appendicitis, (b) of Intestinal Obstruction Following Laparotomy. Dudley P. Allen.
78 Open Air Treatment of Tuberculosis in Northern Ohio. John P. Sawyer.
79 Next Advance in Medical Education. John Inglis.
80 Some Observations by a General Practitioner. H. B. Gibson.
81 Hygiene in Maternity. J. S. Hanson.

### Alabama Medical Journal, Birmingham.

*September.*

82 Mental Abnormalities. J. T. Searcy.
83 Acute Lobar Pneumonia—Some Remarks on Its Prevalence, Diagnosis and Treatment. Cabot Lull.

### Fort Wayne Medical Journal-Magazine.

*September.*

84 The Faucial Tonsils: Their Use and Abuse. John North.
85 Rôle of Chemical Pathology in Relation to the General Practice of Medicine. A. P. Buchman.

### American Practitioner and News, Louisville.

*September 15.*

86 *Surgical Treatment of Ulcer of the Stomach and Duodenum. William H. Wathen.
87 Atrophic or Rudimentary Kidney. Byron Robinson.
88 Constipation. W. T. McKinney.

86.—*This article has appeared elsewhere. See THE JOURNAL of July 30, title 71, page 355.

### Dominion Medical Monthly, Toronto.

*September.*

89 President's Address—Canadian Medical Association, 1904. Simon J. Tunstall.
90 Treatment of Prostatic Hypertrophy. T. K. Holmes.
91 Group of Cases of Malignant Disease—Infection or Coincidence? R. N. Fraser.
92 Pain in the Upper Abdominal Zone—Its Causes and Diagnosis. George Hodge.
93 The Enlargement of the Prostate. F. W. E. Burnham.

### Annals of Gynecology and Pediatry, Boston.

*September.*

94 Secondary Abdominal Section. Ernest W. Cushing.
95 The Circulation of the Ureter. Byron Robinson.
96 Pathology of Uterine Fibroid. Mary A. Dixon Jones.

### Colorado Medical Journal, Denver.

*May.*

97 Tuberculosis and Appendicitis. Charles Greene Cumston.
98 Pulmonary Tuberculosis in the Aged. J. A. Wilder.
99 Tuberculosis and Pregnancy. (To be concluded.) T. Mitchell Burns.
100 Suprapubic Cystoscopy. Donald Kennedy.
101 Notes on Physical Chemistry. Edward C. Hill.

### Journal of Medicine and Science, Portland, Me.

*September.*

102 Physical Economics Comprising a Mathematical Formula for the Normal Earning Ability of the Body, Based on an Analysis Which Considers Its Functional, Its Technical and Its Competing Ability, by Which a Person May Be Rated and Damages to His Body from Injury or Disease and an Indemnity to Be Allowed Therefor May Be Determined in a Manner Alike Equitable to All Concerned. Erastus E. Holt.
103 Acne Vulgaris. W. L. Hunt.
104 Protargol in the Treatment of Gonorrhea. P. F. Gardiner.

### Pacific Medical Journal.

*September.*

105 Prevention and Treatment of Typhoid Fever. J. R. Smith.

### Kansas City Medical Record.

*September.*

106 Cancer of the Stomach; Report of a Case with Gastrectomy. H. C. Crowell.
107 Crushed Injuries of the Extremities. A. L. Fulton.

### Western Medical Review, Lincoln.

*September.*

108 Review of Recent Typhoid Fever Epidemics and Their Lessons. B. R. Towne.
109 Variola Hybrida (Happel) and Vaccination. A. S. V. Mansfelde.

### Southern Practitioner, Nashville, Tenn.

*September.*

110 Surgical Measures in Difficult Digestion. Richard Douglas.
111 Aortic Regurgitation. W. H. Witt.

### Texas Medical News, Austin.

*September.*

112 The Prophylaxis of Tuberculosis. William S. Carter.
113 Medical Ethics. J. W. McLaughlin.

### Mobile Medical and Surgical Journal.

*September.*

114 Prostatectomy—Its Indications and Technic. W. B. Jackson.
115 Glaucoma. L. C. Edelman.

### New Yorker Medicinische Monatschrift, New York.

*August.*

116 Die Tragweite des Röntgenverfahrens. Carl Beck.
117 Ein Gutachten über den Heilmagnetismus. Albert Moll.

### Oklahoma Medical News-Journal.

*September.*

118 Excision of the Parotid Gland—Report of Cases. A. L. Breeh.
119 Tonsillitis. C. L. Zugg.
120 Is It Mental Trauma? S. Grover Burnett.

### Clinical Review, Chicago.

*September.*

121 Present Status of Orthopedic Surgery. John L. Porter.
122 Hemiplegia Progressiva Ascendens Acuta. (Report of a case.) G. B. Hassin.
123 Hemicrania Migraine. L. Harrison Mettler.

### Journal of Nervous and Mental Disease, New York.

*September.*

124 An Account of the Care of the Insane in Belgium, and Particularly Those in the Colony of Gheel. Paul Masoin.
125 Reduplicative Paramanesia. (To be continued.) Isador H. Coriat.
126 "Automatic" and Intelligent Activities. Henry R. Marshall.

### Wisconsin Medical Journal, Milwaukee.

*September.*

127 Osteomyelitis. N. P. Mills.
128 Albuminuria During Pregnancy. O. L. Hansen.

### Medical Fortnightly, St. Louis.

*September 26.*

129 Abscess of the Brain. F. E. Walker.

### Journal of Comparative Neurology and Psychology, Granville, Ohio.

*September.*

130 Retrograde Degeneration in the Corpus Callosum of the White Rat. S. Walter Ranson.
131 Early History of the Olfactory Nerve in Swine. Edgar A. Bedford.
132 Relation of the Chorda Tympani to the Visceral Arches in Microtus. Victor E. Emmel.

### Old Dominion Journal, Richmond, Va.

*September.*

133 Methods of Purification of Public Water Supplies, with Special Reference to the Water of James River at Richmond. Ernest C. Levy.
134 Prognosis of Malignant Disease. R. M. Randolph.
135 Fractures and Dislocations. John T. Crebbin.
136 Enterocolitis as Seen in Children. J. A. Rucker.

### Providence Medical Journal.

*September.*

137 Colica Mucosa and Its Treatment. James L. Wheaton, Jr.
138 On the Early Diagnosis of Tabes Dorsalis, with Report of a Case. John E. Donley.
139 The Harmfulness of Over Eating. W. F. Morrison.
140 I. Gunshot Wound of Abdomen. II. Cancrum Oris. W. D. Alsever.
141 Extrauterine Pregnancy. Joseph C. O'Connell.

### Medical Herald, St. Joseph, Mo.

*September.*

142 Syphilis and the Nervous System. H. Douglas Singer.
143 Appendicitis. Carl J. Holman.
144 Gonorrhea in the Male. M. E. Silver.
145 The Importance of Early Diagnosis in Diseases of the Rectum. Prince E. Sawyer.
146 The Ocular Manifestations of Neurasthenia. F. E. Franchere.
147 Gallstones. John T. Rogers.
148 Starch Digestives. P. B. Cleaves.
149 Pyuria: Its Significance and Some Remarks on Its Treatment. F. Kreisel.
150 Cystoscopy and Catheterization of the Ureters. A. C. Stokes.

## FOREIGN.

Titles marked with an asterisk (*) are abstracted below. Clinical lectures, single case reports and trials of new drugs and artificial foods are omitted unless of exceptional general interest.

### British Medical Journal, London.

*October 1.*

1 Address on the Historical Relation Between Surgery and Medicine. T. Clifford Allbutt.
2 President's Address. H. B. Symonds.
3 *Discussion on the Present Position of Aseptic Treatment of Wounds. Burghard, Rodman, MacEwen and others.

4 *Present Position of Aseptic Surgery. W. Watson Cheyne.
5 *Cysts in the Median Line of the Front of the Neck. G. H. Edington.
6 *The Operative Treatment of Hernia in Infants and Young Children. Harold J. Stiles.
7 *On the Remote Results of Operations for the Radical Cure of Oblique Inguinal Hernia. Robert Kennedy.
8 Two Cases of Renal Calculus in Which the X-rays Failed to Indicate the Presence of a Stone. R. Clement Lucas.
9 Hepatic Drainage. John B. Deaver.
10 *Carcinoma of the Mammary Gland: Early Diagnosis and Radical Operation Necessary for Its Cure. W. L. Rodman.
11 On Certain Defects in the Present Operation for Mammary Cancer. W. Samson Handley.
12 On Forceps Tourniquet for the Control of Hemorrhage During Operations on the Extremities and in Interscapulo-thoracic Amputations. J. Lynn Thomas.
13 The Intravesical Separation of the Urines Coming from the Two Ureters as an Aid to Diagnosis in Surgical Disease of the Kidneys. R. A. Bickerstaff.

3. See abstract in THE JOURNAL of August 27, p. 624.

4. **Aseptic Surgery.**—Cheyne's paper considers the destruction of bacteria by heat and chemical disinfectants, the disinfection of the skin, towels, instruments, sponges, ligatures, dressings, etc. The methods spoken of are those commonly employed for purposes of sterilization and disinfection.

5. **Cysts of the Neck.**—Edington cites a series of illustrative cases, giving in detail the operative measures employed, the histologic report, and subsequent history.

6. **Operation for Hernia in Young Children.**—The Bassini operation as a routine procedure in children is condemned by Stiles, who says that the indications in performing the radical cure in the young are to isolate and ligate the neck of the sac with the least possible damage to the inguinal canal. The operation he prefers is practically the one introduced for adults by Sir Mitchell Banks. After disinfecting the skin the day before the operation, a boracic poultice or a sterilized gauze dressing should be applied over night. Carbolic poultices should not be used, especially in children, as they are likely to produce severe general depression or even fatal collapse. The incision, which is made a little above and parallel to Poupart's ligament, should not extend down into the scrotum. After exposing the spermatic cord and the pillars of the external abdominal ring, the former, along with its coverings, is freed from the surrounding subcutaneous tissue. The coverings of the cord are caught up laterally at the lower part of the wound by two pairs of forceps, and are then divided longitudinally, layer by layer, with a sharp knife. By turning aside this fascia and grasping its cut edges with the catch-forceps, the pampiniform plexus of veins, covered by the thin fascia transversalis, can be seen on its lateral aspect. The peritoneum of the patent funnicular process is exposed by incising the transversalis fascia parallel and just internal to the plexus of veins. This fascia, along with the veins, is stripped off the sac by means of a blunt dissector or by dissecting forceps. The vas deferens and its vessels are treated in the same way. The fascia transversalis is next stripped off the inner aspect of the funnicular process, which is finally freed around its entire circumference. The separation of the above structures is continued downward until the fundus of the sac is isolated and drawn out of the wound. Should the sac extend well into the scrotum or be continuous with the tunica vaginalis testis, it may be cut across a little below the external ring. The sac is grasped with forceps and held on the stretch while the constituents of the cord are being separated from it in an upward direction as far as the internal abdominal ring. Except when the neck of the sac is unusually wide and the walls of the canal weak, it is unnecessary to fix the stump to the anterior abdominal wall; the ends of the ligature applied to the neck of the sac may be cut short, and the latter allowed to slip back up the canal. If the sac be properly freed at its neck and put well on the stretch the ligature will be applied high enough to avoid leaving a funnel-shaped depression at the level of the internal ring. The canal is closed by introducing a single catgut suture through the outer pillar close to Poupart's ligament, superficially to the cord, and then from within outward through the conjoined tendon and the inner pillar of the ring. By reducing the size of the external ring and including the conjoined tendon in the suture, the liability to the development of an acquired hernia in after life is diminished. It is important to avoid the use of a drain in children. Hemorrhage must be carefully arrested. The space beneath the subcutaneous tissue of the somewhat undermined wound must be obliterated by the introduction of one or two buried catgut sutures or a single silkworm gut mattress suture through the skin and subcutaneous tissue. The skin wound is closed by horsehair stitches. The after-treatment which has given the best results in Stiles' hands is to smear the wound with iodoform out of a 1 in 1,000 sublimate solution, and dust with boracic acid powder, no further dressing being applied. The infant is kept in bed, flat on its back by means of a strap passed behind the shoulders and through the armholes of a flannel band passing across the front of the chest. A metal cage is placed over the child's body to keep the bedclothes from coming in contact with the wound. The nightdress is pinned up and covered with a binder so as to leave the lower part of the abdomen exposed. A piece of boracic lint is pinned around the lower edge of the folded-up gown. All that is necessary is to keep the wound thickly dusted with boracic acid, or, if preferred, with a mixture of boracic acid and iodoform. The average duration of the child's stay in the hospital after operation was rather less than a fortnight.

7. **Radical Cure of Oblique Inguinal Hernia.**—Kennedy gives the remote results obtained in 103 cases, most of which were operated on by a method practiced by him and which may be described briefly as follows: An incision is made over the inguinal canal in the usual way until the tendon of the external oblique muscle and the external ring are exposed. The contents of the scrotum are withdrawn, the sac isolated, and the testicle and cord returned to the scrotum. The sac is dealt with after Kocher's latest method, that is, it is invaginated into the abdomen and brought out through the abdominal wall, the peritoneal surface out, ligatured and cut off, and the internal oblique and transversalis stitched to the deep aspect of Poupart's ligament. The cord passes directly into the abdomen at a point opposite the external ring. The youngest patient on whom the operation was performed was six months old, a case of strangulated hernia, and the oldest was 74 years old, the operation being called for on account of the presence also of a large hydrocele. Both these patients are now well and free from recurrence, the older patient after four years. In 45.63 per cent. of the cases the hernia was due to nonobliteration of the funicular process. In six cases the contents of the sac consisted of the caput cecum and appendix. In one case, a girl of 8 years, the sac contained the ovary and tube. All the cases recovered except one child, who, some weeks after the operation, died of tuberculous meningitis. The operation in this case was undertaken on account of the large size of the hernia and the difficulty, and at times impossibility, of reducing it; strangulation being, therefore, feared. Of 70 cases operated on by the author's method 54 have been traced six years after the operation. Only one case recurred. Operated on by the Bassini method, 10 cases; number traced, 8; recurrences in 2. Operated on by Kocher's method, 3; traced, 3; recurred, none. Operated on by Macewen's method, 20; traced, 11; recurred, 2.

10.—See abstract in THE JOURNAL of August 27, p. 625.

## The Lancet, London.

*October 1.*

14 Case of Sacculated Aneurism of the Arch of the Aorta Treated by the Introduction of Silver Wire and by the Passage of an Electrolytic Current. Hamilton A. Ballance.
15 Case of Banti's Disease. J. F. Strickland, J. F. Hodgson and W. B. Anderton.
16 *The Medical Treatment of Deep-seated Hemorrhage. Francis Hare.
17 *The Treatment of Constipation by the Injection of Olive Oil. Geo. Herschell.
18 A Retropharyngeal Blood Cyst in a Case of Purpura Hemorrhagica. F. Stanley Baker.
19 The Distribution of Fat and Strychnin in Nux Vomica Seeds. H. Wippell Gadd and Sydney C. Gadd.
20 *Three Cases of Skin Disease. Robert Saundby.
21 Uncomplicated Myocarditis in a Girl in Her Eighth Year Associated with Signs of Cardiac Failure and Followed by Sudden Death. George Carpenter.
22 Case of Aniline Poisoning. P. G. Harvey.
23 Cervical Fibroid of the Uterus Obstructing Labor; Cesarean Section; Supravaginal Hysterectomy. H. T. D. Acland.

24 Lithotrity in Egypt for Large Stones. Frank Milton.
25 Some Observations Pointing to an Intracorpuscular Stage of Development in the Trypanosome. E. J. Moore.

**16. Treatment of Deep-Seated Hemorrhage.**—Hare adds four cases of hemoptysis to those already published in which amyl nitrite caused immediate cessation of the hemorrhage. (See abstract in THE JOURNAL of September 10, ¶14, p. 761.) Adding these four cases to those already published gives the following results: Of 13 attacks of hemoptysis (12 phthisical and 1 cardiac) treated by inhalations of amyl nitrite, all save one ceased within three minutes, the one referred to being delayed to ten minutes. Hare says that if amyl nitrite is unprocurable it would be rational to immerse the patient in a hot bath, thus producing vasodilation of the cutaneous area, a diminution of resistance in the aortic outflow, a fall of blood pressure in the left auricle, and a reduction in the pulmonary blood pressure. At the same time the mouth and nostrils should be protected from inhalation of the hot air. He believes that the deliberate provision of cold air for inhalation would aid in securing hemostasis.

**17. Constipation Treated by Injections of Olive Oil.**—According to Herschell, the methodical use of oil injections is one of the most useful procedures at our command for the treatment of muco-membranous colitis and constipation. In order to succeed, however, cases must be selected and injections given in the proper manner. The injection of olive oil as a matter of routine in all cases of constipation will prove disappointing and discredit the method. Gratifying results can be obtained in cases depending on chronic colitis; constipation associated with spasm of the bowel, such as is so frequently found in neurasthenia, and in atony of the intestines, used conjointly with the electrical treatment. The method consists in the injection of from 3 to 10 ounces of warm olive oil at bedtime. This is retained during the night and usually results in an evacuation after breakfast on the following day. The oil should be introduced slowly so as not to create an immediate desire to evacuate. The apparatus used by Herschell consists of a glass funnel provided with a metal loop, by which it can be suspended at a convenient height above the bed on which the patient lies while taking or receiving the injection. It is fitted with about 27 inches of rubber tube of large caliber and terminates in a nozzle of special construction. This nozzle has a large bore to allow the ready passage of the oil, and has the end of the bore well rounded so that even when roughly and unskillfully used it is impossible to damage the mucous membrane of the rectum, and from its shape it is self-retaining. The outflow of oil is controlled by a spring clip, which is so contrived that when opened it will remain so until a catch has been released. The measured quantity of oil is heated by standing the beaker containing it in a basin of hot water before it is injected. It is best to commence with five or six ounces and to reduce the dose daily until the smallest amount which will produce an action of the bowels is found. The effect may be then tried of using the oil on alternate nights, and so on, the intervals being lengthened gradually until the oil is no longer necessary.

**20. Cases of Skin Disease.**—The cases described by Saundby are one of acute pemphigus, an occupation rash caused by bichromate of potassium, and a case of orthostatic purpura (caused by assuming the upright position).

### Annales de Dermatologie, Paris.

*Last indexed XLII, page 1397.*

27 (V, No. 5.) Metabolism in Lichen Planus and Mode of Action of Arsenic. F. Radaeli.—Nouvelles recherches sur les échanges organiques dans le lichen plan et sur le mode d'action de l'arsénic.
28 Nouvel appareil photothérapique à arc électrique. T. Marie.
29 Nouvelle installation pour rayons X et haute frequence sans interrupteur, construite par Gaiffe. Brocq and Belot.
30 (No. 6.) *Les réactions nerveuses au cours des herpes génitaux. P. Ravaut and Darré.
31 Recherches bactériologiques sur la balanite vulgaire. H. Vincent.
32 Skin in Organotherapy. Hallopeau.—Essai d'opothérapie cutanée. From society report.
33 (No. 7.) *Sur la radiothérapie des teignes (of alopecia areata, tinea, etc.) R. Sabouraud.
34 *La radiothérapie dans les affections cutanées. Belot. (Commenced in No. 5.)

**30. Nerve Reactions in Genital Herpes.**—Ravaut and Darré report 27 cases of genital herpes, mostly of the neuralgic type. In another type the nervous symptoms are less pronounced, but still sufficiently marked. The pains are permanent, but remain localized without presenting the character of neuralgic pains. In both types the nervous troubles precede the appearance of the vesicles, and in both they are liable to vanish while the eruption is still at its height. In still another type the nervous symptoms are less evident and are usually restricted to pruritus. Lumbar puncture in 26 cases showed more than 20 figured elements in the cerebrospinal fluid to the field in 5 instances; from 7 to 20 in 10, and from 4 to 6 in 6. The patients showing the most marked reaction in this respect were always those with the severest nervous disturbances, exhibiting besides the genital pains, headache, rachialgia and neuralgias. The nervous system seems to react to the primary cause in the same way in both genital herpes and zona, although this primary cause is probably different for each. Every case of genital herpes with nervous symptoms was always accompanied by some modification of the cerebrospinal fluid.

**33. Radiotherapy of Alopecia Areata.**—Sabouraud's method of treating parasitic tinea by the *x*-rays was described in THE JOURNAL, page 983, of vol. xlii. The *x*-rays are of a strength equivalent to 4.5 to 5 Holzknecht units. This is followed in fifteen days by the falling out of the hair over the part. The hair grows again, and each hair is then healthy. It commences to grow in about ten weeks, and the growth is normal in ten weeks more. The contagiousness of the affection vanishes with the falling out of the last diseased hair, usually about twenty-five days at most after the exposure. In the last six months of 1903 57 children with cryptogamic tinea were cured by this treatment, and in the last six months 134 have been cured. The number includes 120 cases that had proved absolutely rebellious to all other measures. They required treatment of the entire scalp. As each exposure is only of a patch about 9 cm. in diameter, from 12 to 13 sittings were required in these extensive cases. They represent the dregs of the last four or five years of ordinary treatment, the cases left over, that had proved absolutely intractable. Two hospital schools were established in Paris some years ago exclusively for children with these affections. One of them has already been evacuated by the prompt curing of all the inmates. Radiotherapy is proving equally effectual for both favus and tinea tonsurans. During the entire number of 2,200 exposures only 6 cases of radiodermatitis were observed, and these occurred before the present mode of measuring the rays was adopted. The more penetrating the rays, the greater their number, and hence the harder the tube the more penetrating its rays. When a radiodermatitis occurs it entails permanent baldness of the part, and hence the operator should carefully avoid anything of the sort. Permanent baldness is also entailed by repetition of the standard exposure after two or three weeks' interval. Consequently, it is of the utmost importance to have the first exposure complete in every respect. It is also extremely important in treating two separate patches not to allow the action of the rays in the second exposure to impinge on the part already treated in the first exposure, or permanent baldness is liable to result from the superposed action of the rays. The behavior of the tube varies from day to day with the electric tension of the atmosphere and other factors. The Holzknecht radiometer has certain disadvantages, which he enumerates. He has modified it to a certain extent, using instead of the Holzknecht pastilles slips of paper impregnated with an emulsion of barium platino-cyanid in an amyl acetate collodion—the prepared paper used for the spectroscope. It has the advantage of cheapness; the same slip can be used over and over again at need. The tint is modified only by the *x*-rays, and ceases to change as soon as the latter are withdrawn, and the tints are more distinct and more easily compared with the standard tint on the water color test card than the Holzknecht tints. The platino-cyanid paper loses its tint on exposure to the air, and it also requires to be placed at half the distance of the skin to be treated. By using it and keeping within the limits of the

proper tint there need be no fear of dermatitis, while the results of radiotherapy have amply demonstrated its great superiority to all other measures in the treatment of tinea and favus.

34. **X-Rays in Treatment of Cutaneous Affections.**—This extensive monograph issues from Brocq's laboratory at the Paris Broca-Pascal Hospital. A dozen pages are required for the bibliographic references alone. All the various skin affections that have been treated by the *x*-rays are reviewed in turn, with the particulars of the cases treated by Brocq or his assistants. The indications, technic and results attained are given in detail. Among the cases of cutaneous epithelioma 14 have been objectively cured and 6 nearly cured, while 8 are still under treatment, and 4 have abandoned treatment. The form most rapidly modified by the *x*-rays is always that with a central ulceration, surrounded by a hard border.

### Semaine Médicale, Paris.

35 (XXIV, No. 37.) *La bacillémie tuberculeuse. A. Jousset.
36 Close Connection Between the Circulation of Blood and Contact Sensibility. N. Vaschide. Abstract.
37 *Local Treatment of Rheumatic Arthritis by Intra-articular Salicylate Injections. A. Santini. Abstract.
38 Electrolysis in Treatment of Pterygium in Early Stages. P. Panaier. Abstract.
39 *Treatment of Puerperal Fever with Mixture of Quinin and Salicylate. P. Ovary. Abstract.
40 Antidiphtheria Serum in Treatment of Whooping Cough. A. Passalacqua. Abstract.
41 (No. 38.) Evolution et complications des kystes dermoides de l'ovaire. F. Lejars.
42 Formule urinaire dans la pleurésie tuberculeuse (polyurie, hyperchlorurie et albuminurie de convalescence). P. Courmont and J. Nicolas. Abstract.

35. **Tuberculous Bacillemia.**—Jousset comments on the exceptional character of the positive findings and the rarity of virulence of the blood in the course of spontaneous tuberculosis in animals and its transient character in induced experimental infection. His own research has established that positive results are reliable only when a large amount of blood is examined, and, whether the blood is tested by inoscopy or by inoculation, the fibrinous clot is the part to be investigated. Subcutaneous inoculation of a guinea-pig with this clot, followed by the development of a specific adenopathy, even without generalization, are the only reliable proofs of tuberculous bacillemia. He has studied the blood of 35 subjects and in only 11 could the tubercle bacillus be discovered, and these were mostly acute cases. Tuberculous bacillemia is as rare in chronic tuberculosis as it is frequent in the acute forms. There do not seem to be any general manifestations of the bacillemia except the fever. It generally coincided with a continuous and high fever, and was never found in connection with the remittent, hectic fever. Albuminuria is nearly constant in case of this bacillemia. Whenever there were symptoms suggestive of typhoid fever in this bacillemia, granulations were found in the intestines. He has encountered one case of the attenuated or gastric form. He has also observed cases in which the infection of the blood with the tubercle bacillus and arthralgias constituted the entire disease, the prelude to the "tuberculous rheumatism with granulations" described by Poncet. Dyspnea may likewise be the only manifestation of the specific septicemia. The dyspnea in one case coincided with the appearance of the bacilli in the blood and subsided as they were eliminated. At times the dyspnea assumed the character of true asthma. Fever and albuminuria accompanied the close of the periods of bacillemia. The meningeal and cerebral forms of tuberculous bacillemia have not yet been studied. Between the meningitis with actual granulations and toxic meningitis there is probably a phase of pure and simple bacillary infection of the nerve centers and their coverings. Two of the 3 cases of primary tuberculous bacillemia terminated in recovery, and Sticker has observed a similar case. The bacillemia is liable to terminate by elimination of the bacteria through the kidneys and complete recovery, or the bacilli may proliferate and granular implantation result. The bacillemia is in these cases pregranular. The localizations of the lesions in bacillemia may be legion, but the endocardium and the kidneys are the most frequent sites.

37. **Local Treatment of Rheumatic Joint Affections.**—Santini injects directly into the joint 3 to 5 c.c. of a 3 per cent. solution of sodium salicylate. The pain is arrested and the joint can be moved without pain. The effusion is then gradually absorbed. In recent cases the absorption is complete in the course of the same day. The fever and other general symptoms are liable to persist somewhat longer. When they keep up unduly long endocarditis is probably present.

39. **Quinin and Salicylates in Puerperal Fever.**—Ovary mixes equal parts of quinin sulphate and sodium salicylate, and gives .6 gm. of the mixture every three hours. Three or four doses are generally sufficient to arrest the puerperal fever. In his experience with 28 cases thus treated there were 26 recoveries. He believes that the two drugs combine in the stomach to form nascent quinin salicylate, leaving sodium sulphate, which acts on the bowels.

### Archiv f. klinische Chirurgie (Langenbeck's), Berlin.

*Last indexed XLII, page 533.*

43 (LXXIII, No. 1.) *Isolated Inflammation of Bladder Diverticulum. J. Englisch.—Isolierte Entzündung der Blasendivertikel und Perforations-Peritonitis.
44 Study of Bullets. A. P. Morkowitin (Tomsk).—Ueber die Deformierung der Panzer-Kugel des russischen 3-Linien-Gewehres.
45 *Fall von temporärer Aufklappung beider Oberkiefer nach Kocher zum Zwecke der Entfernung eines grossen Nasen-Rachen-Fibromes (turning back upper jaw). J. Hertle.
46 *Experimentelle Studie über Enteroanastomose resp. Gastroenterostomie ohne operative Eröffnung des Darm-Lumens (without opening the intestine). T. Sato.
47 Zur Appendizitis Frage auf Grund von 114 Operations-Fällen. A. Hoepfl.
48 *Zur Kenntnis der Desinfektion der menschlichen Haut (of skin). E. W. Silkemeier (Amsterdam).
49 *Zur Fraktur-Behandlung durch temporärer Annagelung (nailing). P. Niehans (Berne).
50 *Ueber Appendicitis in Inguinal-Hernien bei Männern. M. A. Wassiljew (Warsaw).
51 Early Operating in Appendicitis and Infection of Mesentery of Small Intestine, and Origin of Ileus in Connection with Appendicitis. Wette (Weimar).—Ueber die Früh-Operation der Appendisitis, etc.
52 Resultate bei den penetrierenden Bauchverletzungen des Friedens (stab wounds of abdomen). Brehm (Riga).
53 Remarks on A. Dean Bevan's Article on Surgical Treatment of Undescended Testicle. C. Bayer.
54 (No. 2.) *Results of Operative Treatment of Tuberculous Kidneys. Krönlein (Zurich).—Ueber Nierentuberkulose und die Resultate ihrer operativen Behandlung.
55 *Appendicitis. T. Jonnesco (Bucharest).
56 *To Increase Resisting Power of Peritoneum Before Operations. v. Mikulicz.—Versuche über Resistenzvermehrung des Peritoneums gegen Infektion bei Magen- und Darm-Operationen.
57 *Ueber die Iod-Reaktion der Leukocyten und ihre chirurgische Bedeutung. H. Küttner (Tübingen).
58 Bone Arteries. Lexer.—Weitere Untersuchungen über Knochenarterien und ihre chirurgische Bedeutung.
59 *Subcutaneous Feeding in Practical Surgery. P. L. Friedrich Greifswald).—Die künstliche subkutane Ernährung in der praktischen Chirurgie.
60 *Ueber Prostata-Abszesse. F. Hinrichsen.
61 *Soap Spirits in Disinfection of Skin. R. Falck.—Darstellung und Anwendung konsistenter Spiritus-Seifen zur rationellen Reinigung und Desinfektion der Haut, besonders von ankiebenden Schimmelpilz Sporen.
62 Lympho-Sarkom der Thymus bei einem 6-Jährigen Knaben. H. Coenen.
63 Rib Resection for Old Empyema. E. Voswinckel.—Weitere Erfahrungen über die Behandlung veralteter Empyeme durch ausgedehnte Rippen-Resektion.
64 Zur Kenntnis der Tuberkulose und Osteomyelitis der Patella. W. Röpke (Jena).
65 Zur Kenntnis des congenitalen Schulterblatthochstandes (high shoulder). H. J. Laméris (Utrecht).

43. **Isolated Inflammation of Bladder Diverticulum.**—Englisch has observed 6 cases of inflammation in a bladder diverticulum and its complications. Peritonitis is more apt to follow inflammation in the absence of a stone than with it. Palliative treatment by rinsing and draining is less successful than extirpation of the diverticulum. In case of a stone the diverticulum should be removed with the stone. He bases these conclusions on his own experience and an analysis of the literature. He has collected 250 cases of concrement formation in a diverticulum, and 57 cases of isolated inflammation without a stone. They include 17 in which the pocket was involved in a hernia.

45. **Access to Naso-Pharyngeal Cavity By Turning Back Jaw.**—Hertle adopted Kocher's technic, and found that it afforded remarkably fine access to a large fibroma growing in the naso-pharynx. The hemorrhage was readily controlled by tamponing. The temporary turning back of the entire upper jaw was preceded by tracheotomy and introduction of the tampon canula.

**46. Enteroanastomosis Without Opening the Gut.**—Sato's experimental research has already been mentioned in these columns. He found that freshened surfaces of mucosa approximated for a gastroenterostomy or enteroenterostomy, did not result in any perforation unless the approximated surfaces were cauterized with heat or silver nitrate. When this was done the communication between the two lumina was invariably established within two or three days in all his experiments on dogs and monkeys. Interesting illustrations accompany the article.

**48. Soap Spirits for Disinfection.**—Sikemeier's experiences confirm the value of soap spirits for disinfection of the skin. It was particularly effectual when the skin had been scrubbed with soap beforehand. He washes for five minutes with potassium soap under a stream of warm water, then scrubs for five minutes under the same, and then scrubs for five minutes with soap spirits, terminating with ether and sublimate.

**49. Temporary Nailing of Fractures.**—Niehans has treated several cases of supracondylar fracture of the humerus by temporarily nailing the stumps together. The olecranon is exposed through a side incision, detached at the base and turned back with all the muscles. This exposes the fracture, which is then reduced, and two long nails are driven through both stumps until their heads just project above the level of the skin. The flap is then replaced and the soft parts sutured. The nails were removed the fourth to the seventh day. He has also treated on the same principle fractures of the upper end of the humerus. The radiograms show the two nails inserted to form an acute angle, their points nearly touching. He uses nickel-plated steel nails with a four-sided point. He gives the details of 6 cases. In one the nails were 9.5 cm. long.

**50. Appendicitis in Inguinal Hernia.**—Wassiljew adds another to the 62 cases of appendicitis in inguinal hernia in men. Besides reviewing the literature he portrays the symptoms, diagnosis, prognosis, treatment, etc.

**54. Tuberculous Kidneys.**—Krönlein has operated in 51 cases of tuberculosis of the kidneys, which is about a third of all his surgical work on the kidneys. He performed nephrectomy in 34, and the results have convinced him that this is the operation to be preferred in such cases. The affection is much more common in women than in men. In 92 per cent. it was restricted to one kidney. The infection is always by way of the blood, never urogenic. The tuberculosis was solitary in the kidney in only 12 of his 34 cases; in the others the kidney affection was associated with a tuberculous process in the lungs in 9, in the bladder in 12, in a joint in 9, and in 4 the entire urogenital apparatus was invaded. Twenty-four of his 34 nephrectomized patients are still living. Eight died within eight months of the intervention. None died with indications of insufficiency of the remaining kidney. Nine of the 10 subjects who died were examined postmortem and nothing abnormal could be detected in the remaining kidney. He is getting up an atlas on renal tuberculosis, and has collected a quantity of valuable material. He distinguishes between the fluid and the solid form, the latter including the solid caseous and the diffuse solid varieties. There is also a tuberous form with unfavorable prognosis, as Israel has already proclaimed. The list concludes with the embolic form, of which he describes a typical example. The methods of functional diagnosis now in vogue can none of them be implicitly relied on. He regards extirpation of a tuberculous kidney as one of the most successful of all operations.

**55. Appendicitis.**—Jonnesco has collected and compares the published results of internal treatment of appendicitis with those of operation later, and proclaims that they are much better than the results of immediate operation. His own statistics confirm this view. He has had 44 per cent. mortality in his cases operated on early, and only 5.2 mortality in those treated by internal measures and surgical intervention later. He never resects the appendix unless it presents; he advises against searching for it. His rule now is to commence with internal treatment (opium, ice, no food, copious subcutaneous or intravenous saline infusion, lavage in case of excessive vomiting, no purgatives). When the signs of generalized peritonitis change to those of a circumscribed peritonitis, with adhesions or suppuration, usually about the eighth to the twelfth day, he proceeds to operate. An operation is indicated, of course, at any time if signs of aggravation are noted.

**56. To Enhance Resisting Power of Peritoneum Preliminary to Operations.**—Mikulicz's method of inducing high leucocytosis before attempting any gastrointestinal operation has been described in these columns, page 1242 of the last volume. He injects nucleic acid under the skin, using a 2 per cent. solution. He also advocates copious rinsing of the abdominal cavity with salt solution, having changed his views in this respect. The increased leucocytosis which follows is a valuable aid in enhancing the resistance of the parts. He has applied these procedures in 34 cases, and the leucocytosis increased by 17 to 45.2 per cent. in the various cases, as he describes in detail. The by-effects were trivial.

**57. Iodin Reaction of Leucocytes.**—Küttner does not ascribe much diagnostic importance to Ehrlich's iodin reaction. The only information to be derived from either the positive or negative findings, in his opinion, is that the prognosis generally proves bad when the iodin reaction is marked.

**59. Subcutaneous Artificial Feeding in Surgery.**—Friedrich's experiences were reviewed in these columns, page 1456 of the last volume.

**60. Prostatic Abscess.**—The points learned from a study of 35 cases are reviewed. In 76 per cent. the abscess was of gonorrheal origin. Three mild cases healed spontaneously after perforation into the urethra. Incision through the rectum is advisable only when perforation into the gut is impending. In all other cases the perineum is the preferable route.

**61. Soap Spirits for Disinfection of Skin.**—Falck has been making an extensive study of various modes of disinfection, and gives the preference over all others to soap spirits. For various reasons which he enumerates, it is better to have the soap spirits in a solid form. He mixes 15 parts sodium soap with 15 parts water and 70 parts alcohol. The soap is softened with a little water and rubbed into the skin in the air. It is then foamed up by putting the hands in water, the disinfection concluding with a solution of sublimate or lysol, applied after all the particles on the skin have been stirred up by the foaming soap spirits. Mechanical scrubbing is an important part of every disinfection.

**Beiträge zur klin. Chirurgie, Tübingen.**

*Last indexed XLII, page 521.*

66 (XLII, No. 1.) •Die Resektion des tuberkulösen Knie-Gelenkes und ihre Resultate. Auf Grund von 400 Operationen aus der von Bruns'schen Klinik. C. Blauel (Tübingen).
67 •Beiträge zur Aetiologie der Appendizitis. M. v. Brunn (Ibid.).
68 •Zur Frage der cerebralen Blasenstörungen (bladder disturbances). E. E. Goldmann (Freiburg).
69 Bloodless Treatment of Irreducible and Old Hip Joint Luxations. Ibid.—Zur unblutigen Behandlung von irreponiblen und veralteten Hüftluxationen.
70 •Extensive Mobilization of Urethra. Ibid.—Die ausgiebige Mobilisation der Harnröhre.
71 Calcified Parasites (Cysticercus cellulosæ) in Röntgen-Bilde. A. Stieda (Königsberg).
72 Zur Kenntnis der Sesam-Beine der Finger und Zehen (sesamoid bones of finger and toes). Ibid.
73 Hernie der Regio pubica mit Durchtritt durch den M. rectus abdominis. M. Draudt.

**66. Resection of Tuberculous Knee.**—Blauel states that 343 out of the 400 patients operated on can be regarded as completely cured. In 17 a secondary operation was necessary. About 15 per cent. died later from general tuberculosis. The proportion of successful resections was 87.9 per cent., in striking contrast to the 45 per cent. reported in König's statistics as cured by conservative treatment of tuberculous knee affections (126 out of 288 cases). He urges that operative radical treatment should be accepted as the standard procedure for all severe cases in both children and adults, and also for the mild ones when good conservative treatment is not promptly beneficial or is impracticable for any reason.

**67. Etiology of Appendicitis.**—Brunn attributes the etiology of appendicitis to bacteria in the appendix, their numbers being in such contrast to the thinness of the wall of the appendix and its small size.

**68. Bladder Disturbances of Cerebral Origin.**—Goldmann's patient exhibited bladder disturbances which vanished permanently after evacuation of an epidural collection of pus compressing the cortex, due to tuberculous osteitis. The postcentral convolution was the site of the lesion, which partly involved also the superior and inferior parietal lobe and the superior temporal convolution. There were no other motor disturbances. Psychic depression had existed for three months before the retention was noted. The desire to urinate was felt normally, and the retention was intermittent and not accompanied by any exaggeration of the psychic depression.

**70. Extensive Mobilization of Urethra.**—Goldmann asserts that defects in the urethra up to 8 cm., or even more, can be repaired by stretching the mobilized urethral stumps. The distal stump can be extensively mobilized, and the central stump is so elastic that it can be stretched to bridge the gap. The stretching is realized by extension of the legs, with traction at the ankles. He has treated 2 patients in this way, with excellent results. The stricture in the first case was the result of a cavalry accident, the resected portion measuring 3 cm. in length. In the second case, 6 cm. were resected to do away with an impassible gonorheal stricture. The functions of the organ do not seem to be impaired in either instance.

### Deutsche Zeitschrift f. Chirurgie, Leipsic.

*Last indexed XLII, page 157.*

74 (LXXII, Nos. 1-3.) Zur Wertschätzung der Jejunostomie nebst Bemerkungen über die Gastroenterostomie. H. Noesske (Kiel).

75 100 Cases of Cosmetic Subcutaneous Removal of Tuberculous Lymph Glands in the Neck, in Front of the Ear and Below the Jaw. J. Dollinger (Budapest).—Die subkutane Entfernung der tuberkulösen Lymphdrüsen des Halses, des Nackens, der Praeauikular- und der Submaxillargegend, 18 cuts.

76 Zur Diagnose der Wurmfortsatzeinklemmung (incarceration of appendix). Sprengel (Braunschweig).

77 Coincidence of Gallstone Colic and Hydatid Cysts in Liver. C. Beyer (Greifswald).—Das Zusammentreffen von Gallensteinkolik und Leberechinokokkus.

78 Zur Frage der Choledocho-Duodenostomia interna. Ohl.

79 Zur Kiefer-Tuberkulose (of jaw). Herhold (Altona).

80 Zur Behandlung von penetrierenden Brustwunden (stab wounds of chest with suture of lung). Grunert.

81 Fall von Darm-Cysten (in intestine). Pluschman.

82 Zur path. Anatomie der Cysten am Pankreas. H. Küster.

83 Zur Kenntnis der Rotz-Infektion beim Menschen (glanders in man). A. Jenckel.

84 Fall von Bursitis subdeltoidea. E. Kreuter.

85 Die Luxatio femoris infracotyloidea. W. Wendel.

86 General Infection in Surgical Infectious Affections. Bertelsmann (Hamburg).—Die Allgemeininfection bei chirurgischen Infectionskrankheiten.

87 Double Prolapse of Intestine After Tuberculous Peritonitis. F. Pels-Leusden (Berlin).—Ueber Hammerdarm und Bauchfelltuberkulose.

88 Ein seltener Fall von primärer Typhilitis mit sekundärer Epityphlitis. O. Hartmann (Cassel).

89 Zur Casuistik der traumatischen Epiphysen-Lösung am unteren Oberschenkelende (detachment of epiphysis at lower end of femur). E. Rumma.

90 Drucknekrose bei kongenitalem Klumpfuss (pressure necrosis with club foot). W. Bauer (Leipsic).

91 Origin of Free Bodies in Joints. Grüder.—Zur Entstehung der freien Gelenkkörper durch Osteochondritis dissecans nach König.

92 Mistakes in Radioscopic Findings. F. Bering (Kiel).—Ueber diagnostische Irrtümer bei Durchleuchtung mit Röntgenstrahlen, nebst Beitrag zur Kenntnis der Fibula-Frakturen.

93 The Photo-Burn Process. H. Strebel (Munich).—Das Lichtbrandverfahren.

94 Fall von traum. doppelseitige Luxatio perinealis. Wohlberg.

95 (Nos. 4-5.) *Ueber diabetische Extremitäten-Gangrän. Hildebrandt.

96 Experimentelle Untersuchungen zur Genese der Sternum-Fraktur bei Wirbel Frakturen (of spine). V. Otz (Berne).

97 Zur Kenntnis der Fussgelenks-Luxation durch Rotation nach aussen mit hoher Spiral-Fraktur der Tibia (mechanism of outward luxation of ankle with high spiral fracture of tibia). W. Schubert.

98 *Operative Reposition of Old Dislocation of Hip Joint. A. Brüning (Giessen).—Zur Lehre von der blutigen Reposition veralteter Hüftluxationen.

99 Zur Lehre von der fötalen Knochenerkrankungen (fetal bone affections). M. Matsuoka.

100 15 Kahnbeinbruche (Fractura ossis navicularis carpi). O. Blau.

101 Ueber einen autochthonen Para-Urethral-Stein aus phosphorsaurer Ammoniakmagnesia. F. A. Suter.

102 Zur operativen Behandlung des Mastdarmvorfalls (prolapse of rectum). F. Weber.

103 *Die Knochen und Gelenkerkrankungen bei Syringomyelie (bone and joint affections). Borchard (Posen).

104 Suture of Stab Wound of Left Auricle. O. Kappeler (Constance).—Stichschnittwunde des linken Vorhofes; Herznaht. Heilung.

105 Duplicate Ureters. B. Klose.—Radiographie eines durch das Cystoskop diagnostizierten Falles von vollständiger Ureterenverdoppelung.

**95. Diabetic Gangrene.**—Hildebrandt explains the occurrence of gangrene in diabetes as a secondary process induced by the arteriosclerosis entailed by the diabetes. The diabetic conditions favor the proliferation of bacteria; his experiments have demonstrated that media containing a certain proportion of sugar afford exceptionally favorable conditions for microbian growth. He has further established that the virulence of bacteria is enhanced when a solution of sugar is injected with them. In treatment of diabetic gangrene, dry asepsis should be the rule. König amputates according to the condition of the arteries. If there is pulsation in both tibialis arteries the leg can be safely amputated low down. A good pulse in the popliteal still allows ablatio cruris, but without these findings the thigh must be amputated. Of 5 patients whose legs were amputated, 2 died; and of 4 amputated at the thigh, 2 died.

**98. Treatment of Old Luxation of the Hip Joint.**—Brüning describes 3 cases and reviews 35 in the literature. The technic which he recommends is conservative attempts at reduction. If these fail, the anterior forward luxation should be transformed into a backward one, and this be operated on. The attempt at bloodless reposition should be followed by a few days of rest, with extension before the knife is used. The earlier the patient is seen and the younger he is, the better the chances for fine functional results. Brüning adds that what he calls "distension" luxations always give a worse prognosis than the traumatic.

**103. Bone and Joint Affections with Syringomyelia.**—Borchard practices at Posen, and has had occasion to treat 19 patients during the last seven years on account of bone and joint affections, the result of syringomyelia. He considers them of neuropathic origin, like the alterations in the joints of arthritis deformans and tabes. He describes the characteristics of the joint lesions and emphasizes the necessity for conservative treatment. In case even of panaritium a very small incision into the focus is all that is allowable. Phlegmons should be treated expectantly. In non-suppurating joint lesions he advises against operative intervention, and when there is pus, incision and drainage should be all that is attempted. In case of very severe changes in a joint he would prefer amputation to resection.

### Monatsschrift f. Geb. und Gynäkologie, Berlin.

*Last indexed XLII, page 1327.*

106 (XIX, No. 5.) Zur Theorie von der Intoxikation der Mutter durch die Frucht (of mother from fetus). Mathes (Graz).

107 *Remote Results of Sänger Treatment of Prolapse of Vagina and Uterus. Scheib (Prague).—Die operative Behandlung des Scheiden- und Gebärmutter-Vorfalles nach Sänger, mit bes. Berücksichtigung der Dauer-Resultate.

108 *Weitere Beiträge zur Hände-Desinfection. Schaeffer (Berlin). (Commenced in No. 4.)

109 Die forensische Bedeutung des Puerperal-Fiebers. Kostlin.

**107. Sanger Technic of Treating Prolapse.**—Scheib states that 141 cases of prolapse of vagina or uterus have been operated on according to the Sänger technic in the years 1899-1903 at the Prague gynecologic clinic. Of this number 65 have been examined after a long interval, and in 60 per cent. the cure was perfect. The advantages of this method are the readiness with which it can be adapted to individual conditions, the slight loss of blood and the easier avoidance of injury of the rectum. An existing slight retroversio-flexio is liable to entail recurrence unless corrected. When this is done, supplementary to the Sänger operation, the results will be even more favorable.

**108. Disinfection of the Hands.**—Schaeffer believes more in the mechanical than in the antiseptic part of hand disinfection. Alcohol and hot water are the main essentials. Alcohol is as destructive to germs as any other antiseptic during the short space of time it is used, while it loosens up and detaches all the detachable particles and germs and shrivels the skin so that the bacteria still lurking in the crevices are held and can not escape during the operation.

### Münchener medicinische Wochenschrift.

110 (LI, No. 35.) *Lymphogene retrograde Metastasen von Bakterien, Geschwulstzellen und Staub aus der Brust- in die Bauchhöhle, besonders in paraaortalen Lymphdrüsen. N. P. Tendeloo (Rotterdam).

111 *Die Indikations-Stellung in der Gynäkologie. A. Sippel.

112 *Erfahrungen mit der lokalen Anästhesie in der poliklinischen Praxis. E. Aulhorn.

113 *Radiologische Untersuchungen des Magens und Darmes bei lebendem Menschen (stomach and intestines in living subject). H. Rieder (Munich).
114 *Ueber die Häufigkeit der Komplikationen der Polyarthritis rheumatica acuta, insbes. derer von Seiten des Herzens. F. Harrasa.
115 *Ueber die Anwendung hoher Dosen von Secale cornutum in der Geburtshilfe (ergot in obstetrics). F. Burger.
116 *Lyssa und Trauma. E. Pfister (Calro).
117 Die Akademie für praktische Medizin in Cologne. Bardenheuer (Cologne).
118 Reply to Roth's "History of Medicine and Hippocrates" (in No. 31). J. Pagel.

**110. Metastases of Bacteria, Tumor Cells and Dust in the Retroperitoneal Lymphatics.**—Tendeloo has been studying the pathologic changes found in the retroperitoneal lymph glands. The importance of these changes has not been generally recognized. In case of processes in the lungs or pleura, he found almost constantly metastases in the lymphatics along the aorta. He frequently saw dust particles unmistakably derived from the lungs by way of the lymphatics. He cites his clinical experience and anatomic research in detail, and describes what he accepts as the mechanism of this retrograde metastasis by way of the lymph passages into the abdomen. It explains not only the occurrence of metastasis of a stomach or liver cancer in the para-aortic lymph glands, but also the metastasis of bacteria, cancer cells and dust particles from the thorax. Further study must be undertaken to determine which lymph vessels lead to certain organs in this region.

**111. Indications for Operative Gynecology.**—Sippel's principles may be summarized in the statement that he believes in operating in every case in which there is apparent danger to life, if the operation offers any prospect of success and the general condition does not forbid it; also in every chronic case in which conservative measures fail to cure and the operation is free from danger. He does not accept as a cure of a displacement a correction which requires the constant wearing of a pessary. He quotes Kocher's axiom: "It is not necessary for every practitioner to act surgically, but it is imperative that they should learn to think surgically," merely substituting the word "gynecologic" for "surgical." When the general practitioner learns to think gynecologically, then suffering womankind will derive the benefit it should receive from the advances in modern gynecology.

**112. Local Anesthesia in the Polyclinic.**—Aulhorn reviews the experiences at Perthes' polyclinic at Leipsic with local anesthesia in 763 cases. Of all the methods used, the combination of adrenalin with injection of .2 per cent. solution of cocain along the course of the nerve proved the most convenient and effectual. All danger from the use of adrenalin can be avoided by injecting it at some distance from the wound. This is particularly necessary when there are flaps that are not very well nourished. In conclusion, he warns to refrain from employing local anesthesia in cases that are not suitable for it, as the excitement that follows its failure is a bad foundation for general narcosis, and lessens the confidence of the public in local anesthetics.

**113. X-Ray Examination of Stomach and Intestines on Living Subject.**—Rieder had large quantities of bismuth mixed with the food and given in enemas, and then examined the subjects with the *x*-ray screen. He gives a number of the facts thus learned, some of them contrary to the teachings of the text-books. The pylorus, for instance, when the stomach is full, may be found to the left of the median line. The full stomach lies vertical or diagonal, never horizontal. There is always an accumulation of gas to be noted in the upper part of the fundus during digestion in the stomach. Interesting facts in regard to the motor function of the stomach can also be learned in this way, as also of the various parts of the intestines.

**114. Complications of Articular Rheumatism.**—Harrasa remarks that the majority of the 58 cases of acute articular rheumatism observed at Aix were in subjects from 16 to 20 years of age, and the affection recurred in nearly 40 per cent. About 43 per cent. of the patients recovered without complications of any kind, but 51.7 per cent. exhibited symptoms of endocarditis. The latter predominated in the younger subjects. An alcoholic heredity seemed to afford a predisposition to these rheumatic heart affections. Other complications were erythema nodosum, pneumonia, chorea minor and a psychosis, one case of each, and 2 of nephritis.

**115. Large Doses of Ergot in Obstetric Practice.**—Burger reports no deaths and only a single case of slight temperature during 11 years of practice, with 8,700 births and 134 deliveries requiring some obstetric intervention. He attributes this fine record to his custom of giving large doses of ergot beforehand when he is contemplating such intervention, from .5 to 1.5 gm. ergotinum dialysatum per os, and, after delivery is concluded, an infusion of secalé cornutum, 35 gm. in 180 gm. water, and 20 gm. syrup of raspberry, in tablespoon doses. The conditions were those of ordinary village and country practice.

**116. Hydrophobia and Trauma.**—Pfister describes a case of hydrophobia developing after an incubation of six months. He offers it as a contribution to the question of the influence of traumatism on internal affections. The patient was a healthy man of 33, whose father had committed suicide under some emotion. The subject was bitten in the thumb by a dog discovered later to be rabid. The wound was superficially disinfected, and four days later Pasteur treatment was commenced. Some other persons who had been bitten by the dog were treated at the same time, and all have remained healthy. The patient resumed his business, but four months after he had been bitten was hit on the head with a heavy chair in some business controversy. There was temporary unconsciousness, and after recovery the patient's character seemed to be altered; he became gloomy and aggressive, complained of headache, and by the sixth month developed a typical case of hydrophobia. Pfister also describes a typical case of false hydrophobia, a nervous affection following the bite of a healthy dog. In such cases a few days will generally witness the vanishing of the symptoms. One feature of this case was that the subject's symptoms, especially his inability to swallow, were reproduced in the spectators for a few days. In another case several persons were bitten by a rabid dog and took the Pasteur course. All have remained healthy except one man, who seven months later was attacked by a large healthy dog. Although he was not bitten, he was very much frightened, and the shock was followed by development of typical hydrophobia.

## Wiener klinische Wochenschrift, Vienna.

*Last indexed page 838.*

119 (XVII, No. 32.) *Ueber functionelle Nieren-Diagnostik (of Kövesy). G. Kövesi (Korányi's clinic, Budapest).
120 2 Fälle von Lungenhaut-Fistein (lung fistulas). R. Wohlmuth.
121 Stab Wounds of Stomach. E. Fuchsig.—Ueber Stichverletzungen des Magens.
122 (No. 33.) Untersuchungen über die Aetiologie der Dysenterie, mit Berücksichtigung von 2 Epidemien in Galizien im Jahre 1903. J. Raczynski (Lemberg).
123 *Tearing Out of Tendon and Suture. M. Hofmann.—Ueber subcutane Ausreissung der Sehne des langen Bizeps-Kopfes an der Tuberositas supraglenoidalis und sekundäre Naht.
124 (No. 34.) *Spine Affection with Tabes. K. Frank.—Wirbelerkrankung bei Tabes dorsalis.
125 *Die Radikal-Operation des Kieferhöhlen-Empyems von der Nase her (access to maxillary sinus through nose). L. Röthl.
126 2 Fälle von Echinococcus mit seltener Lokalisation. R. Graf.
127 (No. 35.) Placental Transmission of Albumin. J. Hofbauer.—Zur Kenntnis des plazentaren Eiweissübergangs von der Mutter zum Kind.
128 *Menstruatio praecox und Ovarial-Sarkom. H. Riedl.
129 Hospital Gangrene. J. Pollak (Graz).—Fall von Hospitalbrand auf dem Boden eines Ulcus cruris.
130 Fall von Atrophia faciei und seine kosmetische Behandlung. R. Stegmann (Gersuny's clinic, Vienna).
131 (No. 36.) *Bemerkungen über die Pasteursche Methode der Schutzimpfungen gegen Tollwut (Pasteur treatment). R. Nitsch (Cracow).
132 Zur Pathogenität des Bazillus Friedländer und zur Histogenese der Mikulicz'schen Zellen. A. Baumgarten.
133 *Vaccination Under Red Light. H. Goldmann.—Vorläufige Mitteilung über die Impfung unter rothem Lichte.
134 (No. 37.) *Ueber die cytologische Untersuchung der Ex- und Transsudate. N. Lewkowicz (Cracow).
135 Ueber Häufigkeit und Verhütung der Blennorrhoea neonatorum. Winterstein.
136 Papillitis und Amenorrhoe. A. Herbst.

**119. Functional Kidney Tests.**—Kövesi has determined the functional capacity of the kidneys by various tests on 100 subjects. His experience has confirmed his opinion in regard to the necessity for leaving the catheter in the ureter for some time, as a reflex oliguria is likely to prove misleading at first.

He never observed polyuria, although it was carefully sought in his last 20 tests. He has never found the molecular concentration of the urine from the sound kidney less than that from the diseased one, with 2 exceptions, and even in these cases examination of the amount of urine indicated which organ was diseased. In regard to the "dilution test," he has found that the capacity of secreting a diluted urine is closely dependent on the condition of the kidney and character of the kidney affection. When the specific glandular element is destroyed the kidney is unable to dilute the urine, while in case of interstitial affections the diluting faculty may be retained unimpaired. The advantages of this test are that the procedure is a physiologic one, and that the elimination of water requires a specific activity on the part of the cells. In regard to the tests with stains, he thinks that they are usually indecisive in the early stages of a kidney affection, and that they can scarcely be regarded as affording much progress in functional diagnosis of the kidneys, although they may aid the novice to locate the mouths of the ureters.

123. **Operation for Torn-Out Tendon.**—When the parts were exposed after the traumatism, the tendon of the long head of the biceps was found completely torn out. The torn-out end of the tendon had become turned back on itself, forming a loop, the loose end of the tendon lower than its head in the muscle. This displacement of the stump must have occurred at the time the tendon was torn out, the elastic strain causing it to fly back. These findings demonstrate the impossibility of restoration of conditions to normal under such circumstances without surgical interference. Hofmann states that he has been able to find only 4 instances on record of operative treatment of this torn-out tendon. The functional results were all so good that he urges surgical intervention as soon as conservative measures fail to show improvement.

124. **Spinal Affection with Tabes.**—Frank reports the case of a man of 55, a cabinetmaker, previously healthy, no lues, who met with a slight accident affecting the sacral region in 1902. A year later symptoms of pronounced tabes developed, accompanied by an osteoarthropathy of the lumbar vertebræ. The latter corresponded in every particular with the descriptions of typical tabetic osteoarthropathy of the spine, and was undoubtedly due to the tabetic process. Comparison with other typical spinal affections shows the differences. The prognosis is favorable. Mercurial treatment should always be instituted in such cases and some mechanical support is advisable not only for its moral effect on the patient, but to relieve the affected vertebræ of weight-bearing. It thus aids in arresting the process or at least in rendering it milder and checking severe destructive changes. This effect may possibly be the reason, he adds, why a supporting corset has such an unmistakably favorable action in tabes.

125. **Operations on Maxillary Sinus Through Nose.**—Röthi has operated on 15 cases of maxillary sinusitis by resecting the anterior two-thirds of the inferior turbinal. At the point of its insertion he makes an opening into the maxillary sinus, extending toward the outer wall of the middle and lower nasal fossæ, establishing a broad communication between the nose and the sinus. In 4 out of his first series of 5, the affection had resisted other measures for years, but was radically cured in one to four months. In the fifth case there is still slight secretion in the sinus. In the second series of 6 patients, 5 were cured and 1 much improved. Of 15 patients, 12 were completely cured and 3 much improved. He regards this technic as an improvement over the Caldwell operation, no external incision being necessary.

128. **Menstruatio Præcox and Ovarian Sarcoma.**—The patient was a girl of 6 who had menstruated regularly since her fourth year, and was precociously developed. A large round-celled sarcoma was removed from the left ovary. In 3 other cases of precocious menstruation on record, a tumor was found in one ovary. In the case described, no genital hemorrhage has been observed during the months since the ablation of the tumor, but the formation of another tumor, manifestly a recurrence of the sarcoma, is unmistakably evident.

131. **Pasteur Treatment of Hydrophobia.**—Nitsch presents arguments in favor of using fresh mixed virus, and in larger amounts than those hitherto adopted. He is convinced that the fresh, spinal cord virus, injected subcutaneously, is entirely harmless for man.

133. **Vaccination Under Red Light.**—See editorial.

134. **Cytology of Effusions.**—Lewkowicz analyzes the publications on this subject and classifies the findings as follows: Endotheliosis signifies a mechanical irritation (transudates in heart and kidney affections, mechanical irritation by the growth of some neoformation or the result of traumatism). Mononucleosis indicates the presence of foreign cellular elements somewhere in some serous membrane. The organism is seeking to rid itself of these foreign elements by macrophagocytosis. Erythrocytosis signifies a hemorrhagic process, either hemorrhage from solution of continuity of the vessels or passage of the erythrocytes through the walls of the vessels in consequence of inflammatory changes in the walls. Lymphocytosis and polynucleosis indicate an inflammatory process, the former a serous, the latter a suppurative process. Cytologic examination is thus able to reveal a pathologic process in some serosa; meningitis can thus be differentiated from the cerebral symptoms accompanying an infectious disease; tuberculous meningitis can be differentiated from an intestinal affection with toxic brain symptoms; tabes and progressive paralysis can be differentiated from a neurosis. The cytologic findings may vary in the course of the same affection, as a serous may merge into a suppurative process. But experience shows that certain pathologic processes obey certain laws. For instance, in case of lymphocytosis of the region of the diaphragm or meninges, we must bear in mind that the majority of the affections in these regions are tuberculous. The lymphocyte formula in case of an exudate in the costal pleura may be regarded as suggestive evidence of tuberculosis, although it does not positively exclude pneumococcus, staphylococcus or influenza inflammations or neoplastic changes. In case of meningitis, this formula indicates tuberculosis or syphilis. The polynuclear formula does not exclude any of these processes, and may indicate more extensive tuberculous or gummatous foci, with necrotic changes. Scraps of endothelium speak against tuberculosis. The polynuclear formula is more liable to accompany probably some pyogenic or allied process, or a rheumatic or hydrophobia process, heat stroke, or possibly malignant disease. In case of a transudate, it suggests an infarct in the lung. The finding of macrophages is testimony in favor of a pneumococcus or rheumatic exudation.

## Books Received.

Acknowledgment of all books received will be made in this column and this will be deemed by us a full equivalent to those sending them. A selection from these volumes will be made for review, as dictated by their merits, or in the interests of our readers.

A System of Practical Surgery. By Prof. E. von Bergmann, M.D., of Berlin, Prof. P. von Bruns, M.D., of Tübingen, and Prof. J. von Mikulicz, M.D., of Breslau. Volume V. Translated and Edited by William T. Bull, M.D., Professor of Surgery, College of Physicians and Surgeons, Columbia University, N. Y., and Edward Milton Foote, M.D., Instructor in Surgery, College of Physicians and Surgeons, Columbia University, N. Y. Surgery of the Pelvis and Genito-urinary Organs. Cloth. Pp. 789. Price, $6.00. New York and Philadelphia: Lea Brothers & Co.

Refraction and How to Refract, Including Sections on Optics, Retinoscopy, the Fitting of Spectacles and Eye-glasses, etc. By James Thorington, A.M., M.D., Professor of Diseases of the Eye in the Philadelphia Polyclinic and College for Graduates in Medicine. Third Edition. With 215 Illustrations, 13 of Which Are Colored. Cloth. Pp. 314. Price, $1.50 net. Philadelphia: P. Blakiston's Son & Co. 1904.

Weather Influences. An Empirical Study of the Mental and Physiological Effects of Definite Meteorological Conditions. By Edwin Grant Dexter, Ph.D., Professor of Education at the University of Illinois. With an Introduction by Cleveland Abbe, LL.D. Cloth. Pp. 288. Price, $2.00. New York: The Macmillan Co. London: Macmillan & Co., Ltd. 1904.

Beauty Through Hygiene. Common Sense Ways to Health for Girls. By Emma E. Walker, M.D., Member of the New York Academy of Medicine. Illustrated. Cloth. Pp. 306. Price, $1.00 net. New York: A. S. Barnes & Co. 1904.

The Action of Light as a Therapeutic Agent. By Leonard K. Hirshberg, Baltimore, Md. Fiske Fund Prize Dissertation. Cloth. Pp. 49. Providence: Snow & Farnham. 1904.